

A BOBIT PUBLICATION

DECEMBER / JANUARY 1989

C1525-1
2/14/89

SCHOOL BUS

F L E E T [®]

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

ANNUAL FACT BOOK

SPECIAL EDITION \$25

**Industry Statistics
1989 Calendar
Company Directory
Distributors Listings**



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SCHOOL BUS

FLEET

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

Vol. 34 No. 6

December / January 1989

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SCHOOL BUS FLEET (ISSN 0036-5601) is published six times a year (February, April, June, August, October and December) by Bobit Publishing Company. The contents of this publication may not be reproduced either in whole or in part without consent of Bobit Publishing. Please address ALL correspondence to the Editorial and Executive Offices at 2512 Artesia Boulevard, Redondo Beach, California 90278-3296. Subscription price \$12 for 1 yr.; \$20 for 2 yrs.; Canada \$18 for 1 yr.; \$30 for 2 yrs.; Foreign \$50 for 1 yr.; \$100 for 2 yrs. (US Currency). Single copy \$2, except Fact Book, \$20. Second class postage paid at Redondo Beach, CA 90278-9988 and at additional entry. POSTMASTER: Return Form 3579 to 2512 Artesia Boulevard, Redondo Beach, CA 90278-3296. Affiliated Publications: Alarm Installer & Dealer, Automotive Fleet, Business Driver, Contemporary Gastroenterology, Contemporary Orthopaedics, Contemporary Surgery, Fleet Financials, Installation News, Limousine and Chauffeur, Metro, Nails, Salon Trends, Showcase USA, Storyboard, and Waterbed.

Statistics



School Transportation 1986 - 1987

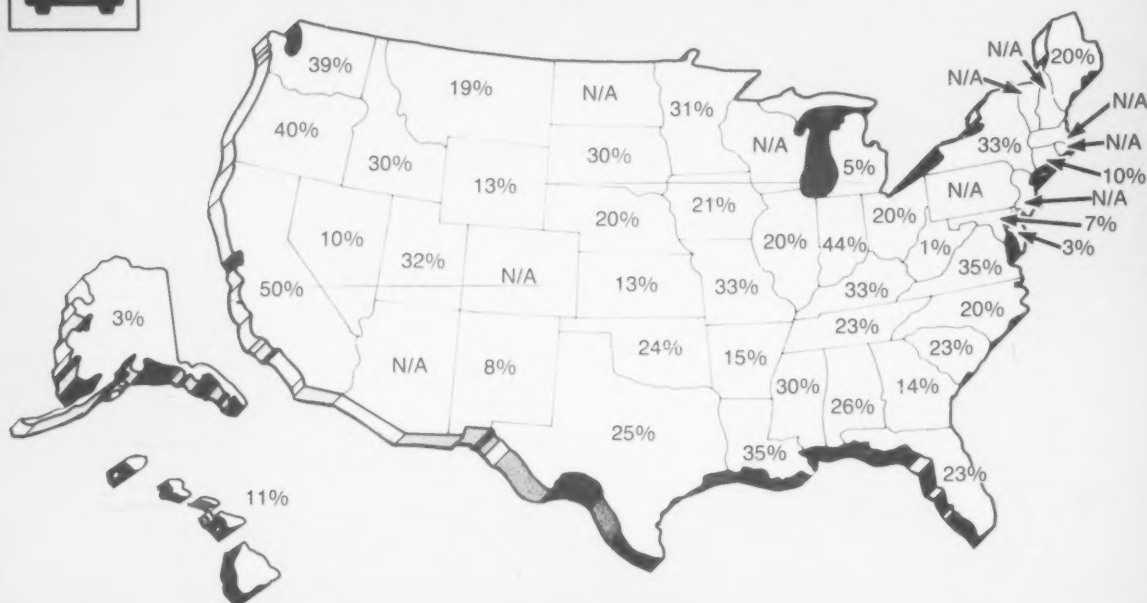
State	Pupils Transported at Public Expense	Bus Ownership						Total Number of Buses	Total Miles of Service	Transportation Expenditures(\$) Including Capital Outlay
		Type I	Type II	Total	Type I	Type II	Total			
Alabama	441,115	6,360	176	6,536	0	0	0	6,536	53,815,195	\$65,661,209
Alaska	41,576	107	5	112	454	86	540	652	5,805,000	23,131,279 ^c
Arizona ^a	205,251	370	3,085	3,455	67	0	67	3,522	32,961,729	50,189,410
Arkansas	264,474	N/A	N/A	N/A	N/A	N/A	N/A	4,179	38,202,000	48,635,662
California	1,094,367	10,969	2,586	13,555	3,447	3,314	6,761	20,316	277,969,108	649,325,896
Colorado	226,563	4,023	399	4,422	N/A	N/A	N/A	4,422	44,613,987	53,736,778
Connecticut	348,763	N/A	N/A	N/A	3,654	1,002	4,656	4,656	a	110,000,000
Delaware	83,683	339	30	369	898	41	939	1,308	16,427,596	27,742,101
Florida	759,388	8,042	300	8,342	649	0	649	8,991	123,150,130	226,361,097
Georgia	1,094,802	N/A	N/A	10,331	N/A	N/A	9	10,340	89,119,080	161,859,686
Hawaii	40,237	15	0	15	508	240	748	763	7,240,558	17,654,717
Idaho	122,400	1,476	10	1,486	528	10	538	2,084	20,665,380	25,651,630
Illinois	928,200	N/A	N/A	8,782	N/A	N/A	12,450	21,230	250,004,393	338,233,257
Indiana	681,491	7,307	160	7,467	2,484	N/A	2,484	9,951	65,796,194	186,240,690
Iowa	244,618	5,815	830	6,645	226	16	242	6,887	62,384,262	59,342,469
Kansas	162,633	558	3,452	4,010	N/A	N/A	1,261	5,271	41,671,097	51,550,057
Kentucky	454,501	7,164	472	7,636	174	11	183	7,819	78,831,900	97,033,965
Louisiana	536,765	3,237	121	3,358	3,742	140	3,882	7,240	65,108,194	123,779,963
Maine	170,240	198	1,738	1,936	56	403	459	2,395	29,436,474 ^c	38,448,006
Maryland	447,399	2,478	14	2,492	2,597	47	2,644	5,136	79,450,533	113,379,689
Massachusetts	496,688	N/A	N/A	2,288	N/A	N/A	5,208	7,496	56,531,103	150,652,577 ^c
Michigan	781,874	N/A	N/A	13,480	N/A	N/A	100	13,580	128,520,000	250,000,000
Minnesota	854,347	3,859	787	4,646	4,560	995	5,555	10,210	116,473,000 ^c	171,611,076
Mississippi	361,580	N/A	N/A	5,200	2	0	2	5,202	41,322,249	55,439,819
Missouri	456,156	4,813	1,129	5,942	3,375	792	4,167	10,109	107,787,266	155,074,336
Montana	60,106	632	48	680	593	48	641	1,321	16,678,152 ^c	17,068,680
Nebraska	263,588	N/A	N/A	N/A	N/A	N/A	N/A	3,552	29,927,872	32,534,089
Nevada	60,478	139	827	966	0	0	0	966	13,513,522	26,125,864
New Hampshire	100,000	291	29	320	1,327	353	1,680	2,000	13,500,000	26,650,547 ^c
New Jersey	619,246	3,547	1,747	5,294	4,605	3,335	7,940	13,234	119,191,000	284,285,392 ^c
New Mexico	136,792	503	71	574	1,240	303	1,543	2,117	29,260,071 ^c	53,082,143
New York	1,917,619	11,539	3,663	15,202	N/A	N/A	12,000 ^b	27,202	300,000,000 ^b	906,259,719
North Carolina	686,089	13,153	0	13,153	0	0	0	13,153	118,429,680	118,538,141
North Dakota	49,619	1,231	168	1,399	448	61	509	1,908	25,676,000	24,343,508 ^c
Ohio	1,296,806	10,866	154	11,020	440	38	478	11,958	162,371,000	268,958,350 ^c
Oklahoma	298,862	6,701	87	6,788	N/A	N/A	N/A	6,788	58,139,408	66,395,099
Oregon	215,831	2,642	354	2,996	1,515	125	1,640	4,636	43,170,484 ^c	71,473,317
Pennsylvania	1,337,637	4,915	232	5,147	12,508	2,934	15,442	20,589	252,957,803	382,454,715
Rhode Island ^c	90,000	N/A	N/A	270	N/A	N/A	1,080	1,350	N/A	N/A
South Carolina	438,783	5,950	13	5,963	18	338	356	6,319	67,309,575	54,652,962
South Dakota	47,466	1,138	101	1,239	391	27	418	1,657	18,707,420	18,607,477
Tennessee	552,996	4,860	151	5,011	1,390	150	1,540	6,551	74,273,760	77,013,202
Texas	1,010,000	22,932	1,558	24,490	631	25	656	25,146	200,899,300	196,119,499
Utah	153,273	1,429	67	1,496	78	2	80	1,576	18,176,856	28,988,429
Vermont	71,567	567	50	1,117	477	126	603	1,846	11,531,429	16,657,688
Virginia	735,553	8,866	410	9,276	281	0	281	9,567	84,194,110	153,656,936
Washington	365,920	5,204	385	5,589	660	151	811	6,400	69,293,757	132,882,016
Washington DC	5,161	N/A	N/A	N/A	N/A	N/A	N/A	148	2,020,000	N/A
West Virginia	278,380	2,721	296	3,017	0	63	63	3,080	37,746,950	84,132,950
Wisconsin	469,413	N/A	N/A	1,971	N/A	N/A	5,112	7,083	73,508,025 ^c	120,252,435
Wyoming	42,203	1,183	327	1,510	32	14	46	1,556	15,145,940	26,208,211
TOTAL	22,602,499	178,139	26,032	246,993	54,055	15,190	106,463	361,998	3,690,908,522	\$6,300,076,838

SOURCE: The National Association of State Directors of Pupil Transportation Services and Bobit Publishing Research Department.

^a) Does not tabulate mileage at state level; ^b) Estimates by NYDOT range from 45% to 55% of all school buses are contractor-owned; ^c) Previous year's data shown.



Percentage of School Buses By State Manufactured Prior to 1977



According to the 1988 SCHOOL BUS FLEET State Directors of Pupil Transportation Survey conducted in Jan. 1988, 22.3 percent of the nation's 350,000 + school buses were manufactured prior to adoption of the 1977 school bus safety standards. One year before the figure was 33 percent. Information was not available from seven states.

Keep school bus safety under foot.

It's early morning and the weather could be better. In a few minutes, your school bus floor will be trampled by dozens of wet shoes and boots, making the walking surface extremely treacherous.

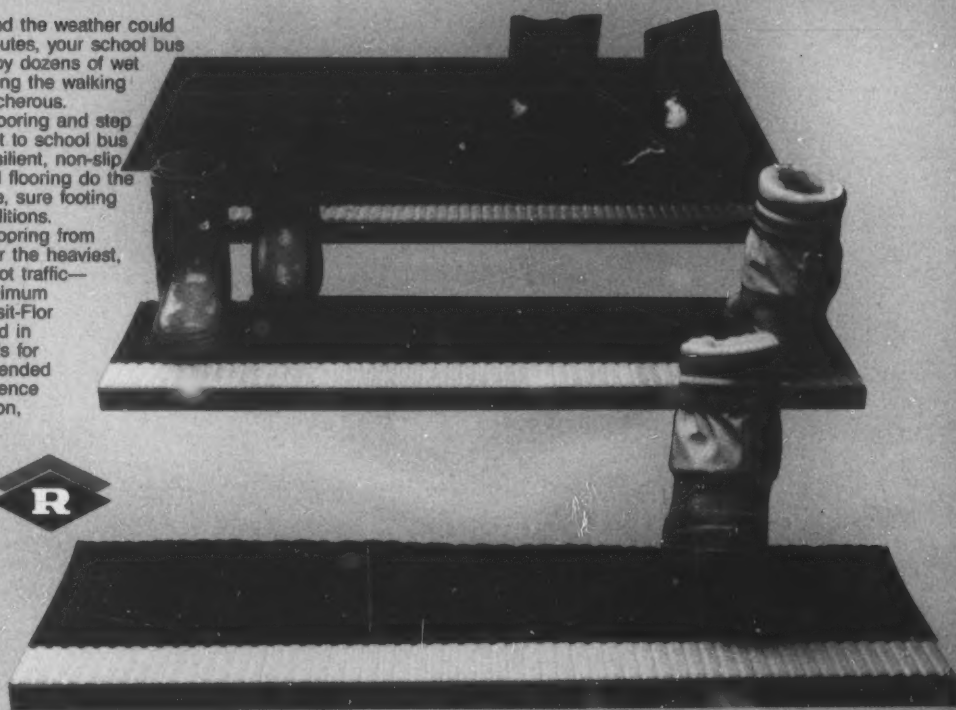
That's why rubber flooring and step treads are so important to school bus safety today. R.C.A. resilient, non-slip rubber stair treads and flooring do the job best, providing safe, sure footing under all weather conditions.

Transit-Floor rubber flooring from R.C.A. stands up under the heaviest, most active kinds of foot traffic—day after day—for maximum child safety. Plus, Transit-Floor and treads are included in the Minimum Standards for School Buses recommended by the National Conference on School Transportation, NEA, 1970, meeting Motor Vehicle Safety Standard #302.

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RUBBER
COMPANY**

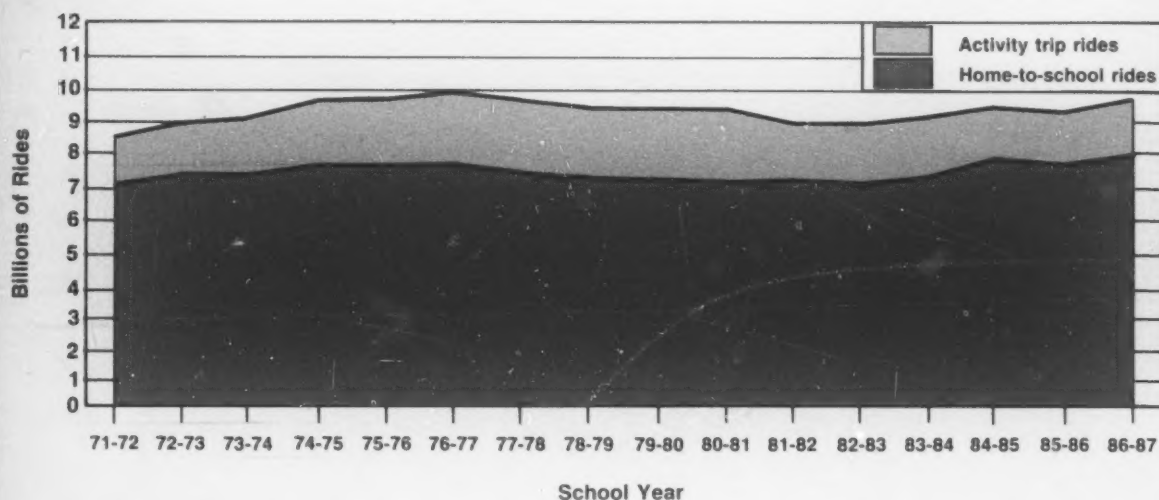
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of Akron, Ohio

1833 E. Market St.,
Akron, Ohio 44305
(216) 784-1291





U.S. School Bus Child Rides



Pupil transportation provided 9.6 billion child rides in the most recent school year. It is the largest single transportation enterprise in the country, and certainly one of the largest in the world. That figure is calculated by multiplying the number of children who ride a school bus daily by a factor of two (to account for to-school and home-from-school rides), then multiplying the result by 180 school days; finally, we added a conservatively estimated 20 percent of the total to account for activity trips.



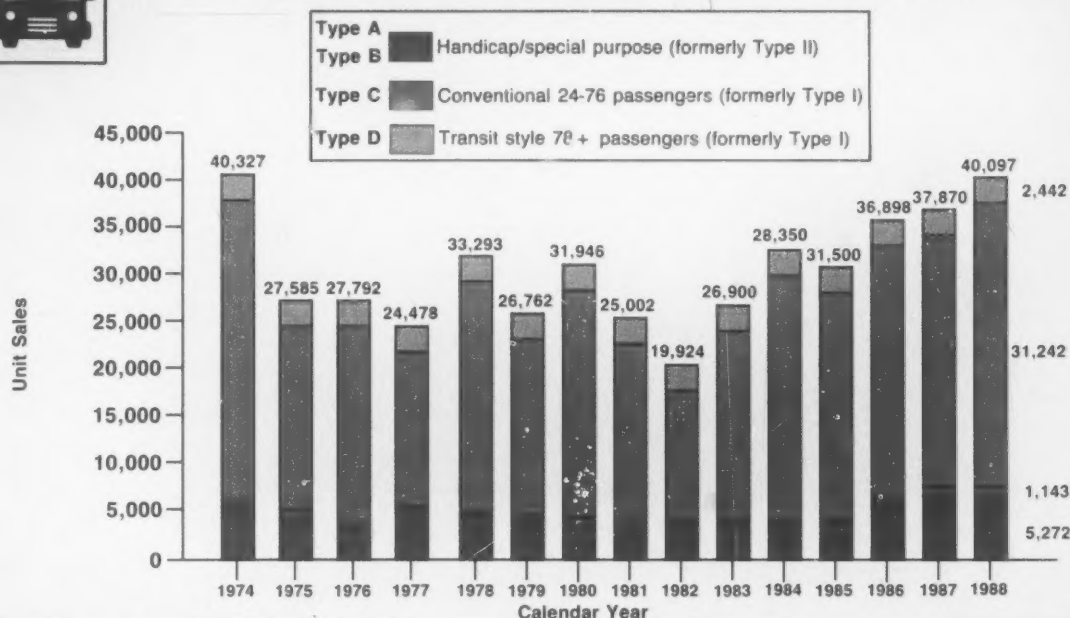
Growth of School Transportation In The United States

Source	Year	Number of Pupils Transported	Number of Vehicles Used	Pupils Per Vehicle	Expenditure*	Expenditure Per Pupil
National Association of State Directors of Pupil Transportation Services	1986-87	22,602,499	361,998	62.4	\$6,300,076,838	\$278.73
	1985-86	21,945,021	352,557	62.2	6,285,209,795	286.40
	1984-85	23,378,605	352,434	66.3	5,750,535,560	245.97
	1983-84	21,821,947	326,392	66.9	4,724,722,010	216.51
	1982-83	20,952,506	332,453	63.0	3,565,046,073	170.14
	1981-82	22,836,272	335,160	68.1	4,821,783,550	211.14
	1980-81	22,598,975	334,461	67.6	4,125,443,607	182.50
	1979-80	22,578,280	329,808	68.5	3,894,893,829	172.50
	1978-79	22,882,191	323,333	70.8	3,341,035,199	146.01
	1977-78	21,923,780	315,489	69.5	2,880,513,030	131.39
	1976-77	23,156,006	298,173	77.7	2,666,446,831	115.15
	1975-76	22,757,316	312,030	72.9	2,285,840,977	100.44
	1974-75	22,398,556	282,834	79.2	2,000,991,592	89.33
	1973-74	21,169,633	271,552	77.9	1,537,148,313	72.61
	1972-73	20,791,737	262,579	79.2	1,407,472,462	67.62
	1971-72	20,047,589	257,804	77.8	1,324,740,407	66.02
	1970-71	19,191,483	245,608	78.1	1,178,910,190	61.82
	1969-70	18,752,735	239,973	78.1	966,135,767	51.51
National Education Association	1968-69	18,467,944	238,102	77.6	901,353,107	48.80
	1967-68	17,271,718	230,578	74.9	822,595,699	47.62
	1966-67	16,684,922	221,722	75.3	763,600,617	45.76
	1965-66	16,423,396	210,692	77.9	696,325,421	42.40
U.S. Office Of Education	1964-65	15,413,000	206,000	74.8	642,627,000	41.69
	1963-64	15,559,524	200,116	77.7	612,310,333	39.35
	1962-63	14,247,753	195,397	72.9	578,017,634	40.57
	1961-62	13,687,547	191,160	71.6	540,168,114	39.46

*Expenditures include equipment and tools, salaries, maintenance and fixed charges, such as licenses, insurance, etc.



U.S. School Bus Body Sales 1974-1988



According to the editors of **SCHOOL BUS FLEET**, the 1988 calendar year will see the second highest number of school buses ever built. Bus body and chassis builders manufactured 40,097 school buses, nearly matching the record number built in 1974. Figures for 1988 were collected from manufacturers and component suppliers six weeks prior to the end of the calendar year and thus include estimates for December's production; the margin of error is minuscule as manufacturers are able to accurately project production rates for two or more months.

SOURCE: **SCHOOL BUS FLEET** Research Department



State School Bus Purchases

State	1981	1982	1983	1984	1985	1986	1987	1988
Florida	757	734	897	937	1,065	1,166	952	1,451
Kentucky	670	566	632	604	632	579	650	629
North Carolina	610	953	585	759	785	1,202	1,200	1,290
South Carolina	506	285	219	368	718	409	1,000	0
Texas	*2,000	*2,000	*2,000	*2,000	*2,000	*2,000	1,950	1,850
West Virginia	263	272	324	349	347	328	342	**555
Total	4,806	4,810	4,657	5,017	5,547	5,684	6,094	5,775

*approximations

**maximum number to be purchased, minimum of 251 school buses will be purchased.

In six states school buses are purchased directly by the state, with a committee comprised of the state director of pupil transportation and other educational or transportation experts developing the specifications for the vehicles. State officials compile the number of buses that districts (and sometimes contractors) require, and then solicit bids from bus body and from chassis manufacturers.

This method of procuring school buses is unlike that in most states, through their reimbursement formula, reimburse school districts which handle the procurements. Of the six states listed, five purchase once a year while the sixth (Texas) purchases monthly. The data for four of the states is presented by school year while Kentucky and Texas purchase by calendar year. The figures represent an aggregation of all types of school buses. South Carolina made no purchases this year because the state made a large purchase in 1987 when extra funds were available for school bus purchases.

SOURCE: **SCHOOL BUS FLEET** Research Department



School Bus Accidents By States 1986-87

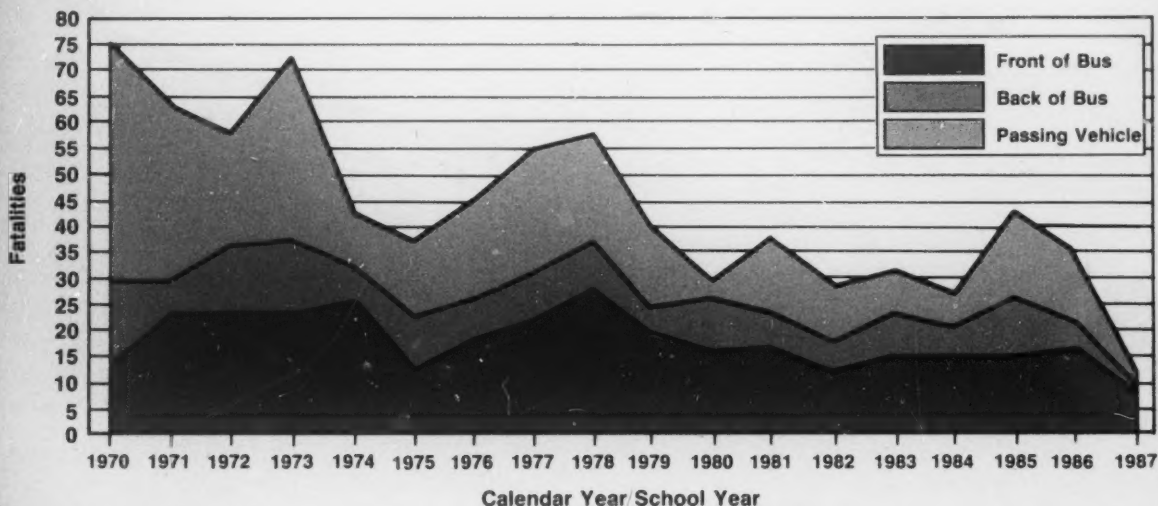
State	Total Vehicles	Annual Bus Mileage (000)	Pupils Transp. Daily	Type of School Bus Accident				Prop. Damage Only Acc.	Persons Injured	
				(a) Total	Other Veh.	Non-Coll.	Fixed Obj.		Total	Pupils
Alabama	6,536	53,815 ^d	441,115	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alaska	652	5,805	41,576	59	52	0	6	55	4	0
Arizona ^a	3,522	32,961	205,251	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arkansas	4,179	38,207 ^d	264,474	125	112	1	1	91	68	19
California	16,863	290,320	1,094,367	2,441	1,593	132	234	1,980	847	630
Colorado	5,239	44,614	226,563	250	235	0	9	229	44	24
Connecticut	5,071	c	349,000	655	634	0	16	574	226	143
Delaware	1,274	16,561	81,557	141	104	0	17	113	57	30
Dist. of Col.	148	2,020	5,161	71	N/A	N/A	N/A	24	4	3
Florida	8,991	154,000	763,734	923	757	25	87	429	602	429
Georgia	8,571	89,119	842,748	1,065	779	0	102	N/A	313	208
Hawaii	763	7,239	40,237	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Idaho	2,237	20,665	122,000	111	97	0	3	94	24	5
Illinois	21,230	250,004	928,200	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indiana	10,291	58,790	680,250	856	N/A	N/A	N/A	715	287	124
Iowa	6,834	62,384	244,618	465	319	15	104	388	77	40
Kansas	5,144	61,385	169,000	151	109	2	8	120	53	22
Kentucky	6,658	78,832	454,512	1,001	834	23	68	763	306	222
Louisiana	7,240	61,960	536,765	453	431	6	7	432	35	25
Maine	2,395	30,364	170,240	188	N/A	N/A	N/A	N/A	N/A	N/A
Maryland	5,136	79,451	447,400	1,151	1,032	10	94	1,039	235	152
Massachusetts	7,496	56,531	496,688	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Michigan	13,580	128,520	781,874	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Minnesota	10,389	121,931	636,552	530	366	3	13	383	244	N/A
Mississippi	5,343	41,322	362,127	401	363	8	19	348	69	50
Missouri	10,220	100,729	446,250	1,028	839	65	93	904	480	360
Montana	1,321	17,016	62,106	54	42	10	N/A	45	12	11
Nebraska	4,500	30,875	65,686	100	92	2	5	74	N/A	N/A
Nevada	965	13,514	60,478	200	0	0	170	170	96	29
New Hampshire	2,000	13,500	100,000	170	145	5	20	166	N/A	N/A
New Jersey	13,234	119,191	619,246	429	307	6	28	125	425	296
New Mexico	2,081	24,612	135,394	207	180	5	13	166	77	37
New York	27,202 ^a	200,892 ^d	1,917,619	488	395	0	4	285	669	462
North Carolina	13,111	118,430	687,867	1,090	883	104	8	747	721	642
North Dakota	1,908	25,676	49,619	20	18	0	1	N/A	N/A	N/A
Ohio	11,958	162,371	1,296,806	1,258	N/A	N/A	N/A	1,057	218	201
Oklahoma	6,788	58,139	298,862	388	351	0	18	245	143	90
Oregon	4,636	44,612	215,831	320	254	0	53	296	37	13
Pennsylvania	20,589	252,958	1,337,637	1,277	1,068	N/A	150	N/A	113	65
Rhode Island ^d	1,350	N/A	90,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Carolina	5,964	65,179	436,854	943	869	7	44	915	484	302
South Dakota	1,300	19,000	45,000	82	67	0	3	73	14	8
Tennessee	6,551	65,610	552,996	814	576	3	209	707	404	265
Texas	24,100	236,577	1,071,267	1,685	1,461	0	64	1,155	530	388
Utah	1,537	17,746	153,273	73	65	0	5	50	19	7
Vermont ^d	1,846	11,531	71,567	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Virginia	9,557	84,194	735,553	785	716	0	51	656	194	102
Washington	6,427	68,891	363,000	310	271	2	12	213	169	59
West Virginia	3,017	40,261	278,380	604	417	0	171	595	9	4
Wisconsin	7,083	N/A	469,413	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wyoming	1,565	15,146	42,203	34	29	0	2	28	22	17
TOTAL^b	356,589	3,593,450	21,986,916	^b30,000	^b25,000	^b700	^b3,000	^b25,000	^b10,500	^b7,300

SOURCE: National Safety Council survey departments of education and state traffic authorities. Most reports cover 1986-1987 calendar year. U.S. totals are Council estimates for the calendar year 1987. Additional Source: State Directors of Pupil Transportation Services.

^aTotals include additional accident types not shown separately; ^bProcedures for estimating U.S. totals were revised for the 1985 edition. U.S. totals in this edition are not comparable to estimates prior to the 1985 edition; ^cDoes not tabulate mileage at state level; ^dState director did not report figures before deadline. Data is from previous year; ^eEstimate by NYDOT.



K-DOT Fatalities



Calendar year 1987 saw a 24 percent decrease in pupil fatalities, according to the annual Kansas DOT Loading & Unloading Survey. Altogether 32 children between the ages of 5 and 17 were killed in the loading/unloading zone during 1987. While the number has trended downward since 1970 when the series was begun, the children killed in the most recent year reported brings to 827 the number of pupil fatalities in the loading and unloading zone in the last 17 years. SOURCE: Kansas DOT Loading & Unloading Survey

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F L E E T



NAPT Conference Held 5th State Directors Survey

**Plus: AIDS on the School Bus
Thomas MVP, Navistar Chassis
New Bus Company Profile**

February / March 1989



Clean-up 53



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Cross country tour 66

On the cover: Photo of the New Bus Company's Type D Chickasha taken by Carl's Studio, Inc., Chickasha, Okla.

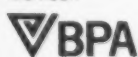
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Member:



EDITORIAL AWARD
JESSE H. NEAL CERTIFICATE, 1985

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Industry News

K-DOT Loading & Unloading Zone Fatalities

	1984	1985	1986	1987
Front of bus	15	15	16	8
Back of bus	6	11	6	9
Struck by passing vehicle	7	17	14	11
Other	0	0	0	4
No information	2	2	6	0
Total	30	45	42	32

The 1987 Kansas Department of Transportation School Bus Loading & Unloading Zone Survey shows a 24 percent decrease in student fatalities from the previous year.

K-DOT Survey Shows Drop In Fatalities

The number of children killed in the school bus loading and unloading zone decreased 24 percent in 1987 according to the Kansas Department of Transportation School Bus Loading & Unloading Survey.

Forty-eight states reported 32 fatalities during the year, compared to 42 the previous year. Some states report their data using a school year time period while others use calendar year.

The number of children killed in front of the bus was reduced by 50 percent while three less children were struck by passing vehicles. However, three more children were killed in back of the school bus.

This year's survey also listed four children in the "other" category; these children were killed while on-board the school bus and not in the loading and unloading zone. Robert Fischer, a specialist for the Minnesota Department of Education's Pupil Transportation Section, pointed out that these deaths should not have been included in the survey. According to a letter by Fischer, the Kansas DOT concurred and these

fatalities should have been footnoted in the survey.

Other data included in the survey includes the following:

- Of the deaths, 23 of the 32 occurred on Type C school buses.
- Sixteen of the children were female, 15 were male and there was no information for one.
- Trips coming home from school accounted for 75 percent of the fatalities this year, with the remainder occurring on the way to school. Meanwhile, over the last 18 years, 65.7 percent of the fatalities occurred on the trip home.
- Again, children under eight years of age are the highest risk, with 21 of the 32 fatalities in this age group. Over the past 18 years, 67 percent of the deaths were children under eight.
- Weather conditions did not play a major role in the fatalities with 78 percent occurring during clear skies, two during cloudy weather, four during the rain, and one in snowy weather.
- Sixteen of the deaths occurred in rural areas.
- Twelve of the deaths occurred on Friday, with seven on Monday and six on Wednesday.
- March was the month with the

most fatalities with seven.

• Pennsylvania reported the most fatalities with six, followed by New York with five and Missouri with four.

There have been 829 total fatalities in the loading and unloading zone as reported by K-DOT since 1970.

Louisiana Cuts School Bus Funds

Louisiana Governor Charles Roemer has eliminated the state's Bureau of Transportation administrative unit overseeing school transportation and cut \$107 million from the budget for school bus driver salaries. This economically motivated reduction has left the state without a director of pupil transportation to regulate the safety practices of school buses.

In a compromise move with state politicians, Roemer eliminated the money for drivers' salaries from the state budget; however, the funds will be supplied this year by a temporary tax. The legislature agreed to lift a tax exemption on certain items including food and gasoline until July 1, 1989, to raise state funds. After that date, the items will again be exempt from taxation and this revenue source for school transportation will dry up.

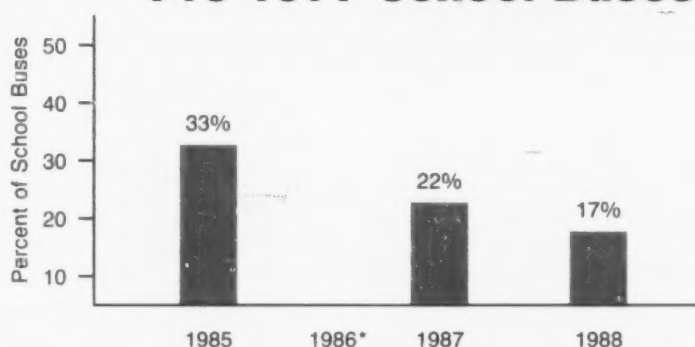
"No one knows what to do with this governor," said Ann Barton of the Louisiana School Bus Operators Association, representing 4,200 drivers throughout the state. "The school bus inspections are going to be cut, the buses will be loaded up with students, and the conditions may become unsafe."

The state Department of Public Safety will continue to perform mechanical inspections through June 30, 1989, but after that there will be no certified agency conducting inspections. The state will also no longer have an agency conducting school bus driver certifications when the funds are eliminated. A legislative study is now underway in order to determine fund raising solutions.

SBF's 5th Annual State Directors Survey

State directors comment on various topics affecting the industry such as handicapped transportation and driver training.

Pre-1977 School Buses



*Pre-77 data not solicited in 1986 survey.

The percent of pre-1977 school buses continues to decline. According to the 5th annual School Bus Fleet State Director's Survey, only 17 percent, or approximately 45,600 school buses in the active fleet, were manufactured prior to adoption of the 1977 DOT safety standards.

The actual figure is likely much lower, however, as 11 state directors did not supply information for this question in this year's survey. However, seven of these 11 answered this question a year ago; if that data is factored in (and bear in mind available data from these seven states is currently one year old) then the numbers would be 18.3 percent and 59,198 school buses.

SOURCE: SBF Research Dept.

- More than 83 percent of the buses in school transportation were manufactured after implementation of the 1977 DOT safety standards.

- In the last five years, 19 states have experienced fires onboard one of their school buses.

- Six states do not require any specialized classroom, behind-the-wheel, or in-service training whatsoever for school buses drivers.

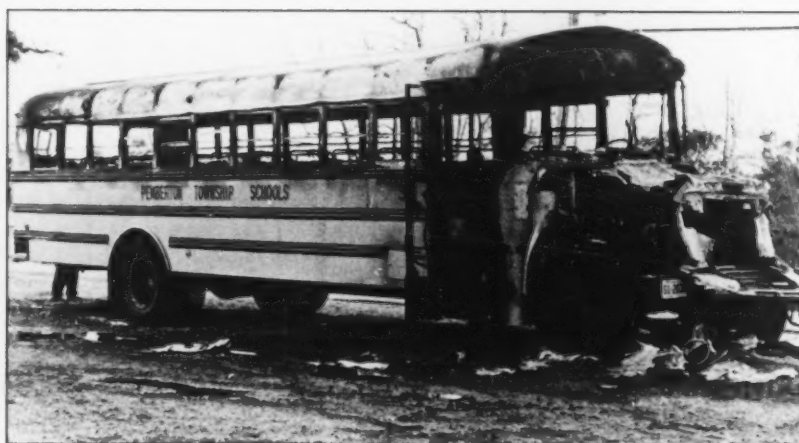
These are just a few of the facts accumulated from the Fifth Annual State Directors of Pupil Transportation Survey conducted by *SCHOOL BUS FLEET*. The survey was distributed to all of the state directors in late December 1988, and 47 states and the District of Columbia responded, representing 84 percent of the school buses nationwide.

Disappointingly, responses were not received from three states — including Pennsylvania and New Jersey, which have 13,000 and 20,000 vehicles respectively.

In the wake of the tragic church bus fire in Carrollton, Ky., in May, 1988, the industry has been bombarded with media attention on the number of pre-standard school buses still on the road. This year's survey shows a continuing decline in the number of pre-1977 school buses. With 40 states responding to the query, just 17.1 percent of the school buses nationwide are reported to be pre-'77 — down from 26 percent the previous year and 33 percent in 1986. Connecticut with 0.05 percent and Maryland with 0.0001 percent reported the least amount of older school buses on the road; New Mexico, Massachusetts, Delaware and West Virginia also show small percentages.

Meanwhile, in the District of Columbia, our nation's capital, 80 percent of the school buses are prestandard. California continues to operate more than 9,100 (45 percent) prestandard school buses. Alabama also reported 45 percent of their school buses as pre-'77, while both North Dakota and Oregon also report 40 percent of their vehicles as pre-'77.

While this continuing decline of pre-DOT school buses is a healthy development for the industry and the safety of school children, it is unclear what this trend may mean to school bus manufacturers in the coming half decade. For, as a larger and larger percentage of school buses are of post-77 manufacture, a question arises: Will the rate of acquisition of new equipment continue at the current pace?



The Carrollton church bus crash focused national attention on the flammability of school bus interiors. Many of the state directors responded that FMVSS 302 should be addressed at the upcoming National Standards Conference.

School bus sales have grown steadily since 1982, peaking at 40,097 in 1988. It may turn out that financially strapped school districts will slow their acquisition rate, or acquisition activities may shift to those states such as Alabama and California which still have a high percentage of pre-DOT buses, or the current pace will continue. After all, a mini-boomlet is projected in school-age population in the mid-1990s.

Safety issues

Concentrating many of the questions on safety related issues, the editors of *SBF* asked the state directors about the status of safety programs in their states.

When asked if their state has regulations requiring forward facing wheelchairs on school buses, 40 states answered no, while seven states answered yes. In Tennessee, Dr. Ernest Farmer responded that the state mandates forward facing wheelchairs in large Type C and Type D school buses, but does not require forward facing wheelchairs in smaller special education type vehicles (Type A and Type B).

The topic of regulations for special education transportation was cited by many of the state directors as a high priority item at the upcoming 11th National Standards Conference in 1990. In that same vein, four out of every five states responded that they require emergency evacuation drills for school

children onboard small Type A and Type B "handicap" school buses. These evacuation drills may consist of wheelchair procedures and/or adaptive device dismantling procedures; however, most of the states answered that the specific drill techniques are left up to local school officials.

Clearly, the increasing emphasis on special education transportation, and specifically the possible application of Section 504 of the Rehabilitation Act of 1973 (Section 504 has traditionally governed handicap policies of public transit), suggests not only increasing attention the industry must devote to this topic but increased marketing opportunities for manufacturers of wheelchair lifts, wheelchairs and various adaptive devices, Type A and Type B school buses, etc.

Regarding evacuation drills onboard large school buses, 41 states mandate the drills, while the remaining states only recommend them. Of those requiring drills, nearly all mandate the procedures be conducted at least twice per year. Again, drills may consist of rear door, window and/or service door escapes, but most states leave the specifics to local officials. Only New York requires an evacuation drill to be conducted from all three emergency exits.

In an attempt to isolate the various safety exit features mandated on large school buses, the survey asked the state directors to list all

emergency exits, in addition to the already required rear emergency exit. Six states require a right side emergency exit door; nine states require a left side emergency exit door; 13 states require push-out windows; and three states require escape roof hatches. Other required safety exits include a rear service door and a requirement that windows open to a certain size for easy escape if necessary.

Seven states responded that they do not require the aisle in a school bus to be clear at all times — in other words, these states may allow standees. Meanwhile, six states listed that they do not require the aisle in a special education school bus to be clear at all times. Ron Kinney, state director in California, clarified that his state does not require a clear center aisle on a special education "wheelchair" bus, but does maintain a clear aisle on a large school bus. Again, the Carrollton church bus crash focused attention on this issue because the vehicle was overcrowded and many of the victims were unable to escape the flames because the aisle was incumbered.

The directors were also asked if their state mandates school buses to operate with headlights on during daylight hours while transporting pupils. Fully, 83 percent of the respondents do not require this, while eight states do. In Alaska, state director Romaine Kareen responded that most school buses operate with headlights on, even though it is not required.

Drugs and drivers

One of the most sensitive issues facing pupil transportation is dealing with children onboard the school bus who are afflicted with a communicable disease. (See article in this issue entitled "Safe Cleanup Helps Combat Disease Spread," on page 53.) In last year's State Director's Survey only two states reported they had developed a statewide program of guidelines for handling communicable disease on the school bus. According to this year's survey, 10 states now have guidelines or regulations for the transporta-

tion of these pupils.

Moreover, Larry McEntire of Florida reports that his drivers will be instructed on proper handling techniques in the spring of this year.

The Federal Highway Administration (FHWA) recently mandated drug testing requirements for school bus drivers in extremely specialized circumstances. However, more than half of the responding states do not know how many

training. Some explanations could be the nationwide shortage of drivers — especially in these rural states — or a lack of funding.

Of the 42 states requiring minimum hours of training, the averages are as follows:

- 14.7 hours of classroom training;
- 6.8 hours of behind-the-wheel training, and
- 5.5 hours of annual in-service training refreshers.

In many states, the minimum hours of training vary or is left up to the local school authorities. Among the stricter states are West Virginia (117 total hours), California (50 total hours), Louisiana (48 total hours), District of Columbia (48 hours) and Arizona (44 total hours).

Funding for school bus driver training seems to be scarce. Seventeen state directors do not budget any state funds from their office for

Six states reported they do not have statewide requirements for classroom, behind-the-wheel, and annual in-service school bus driver training.

school districts or school bus contractors operating in their state subject their drivers to drug tests. Moreover, an additional 14 states said that no districts or contractors conduct drug tests in their state. Among the eight state directors able to respond to the question, 10 school districts and 41 private contractors nationwide are identified as conducting drug testing on their drivers. In the 1987 survey, the state of New Jersey listed more than 500 districts conducting testing; however, that state did not respond to the survey this year.

In Maryland, director Dick Alexander says the state's annual physical examination guidelines say that "tests shall be performed to detect the use of narcotic or other habit-forming drugs when use is suspected."

One alarming development in the survey is the declining amount of school bus driver training required. Six states — Iowa, Maine, Missouri, Montana, South Dakota and Wisconsin — reported they do not have statewide requirements for classroom, behind-the-wheel, and annual in-service school bus driver



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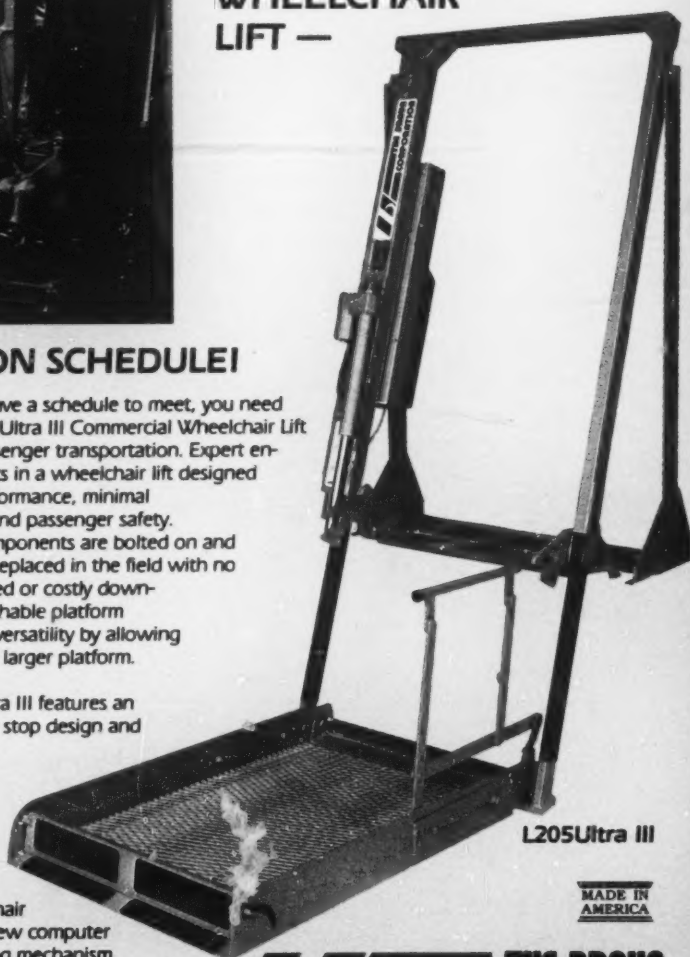
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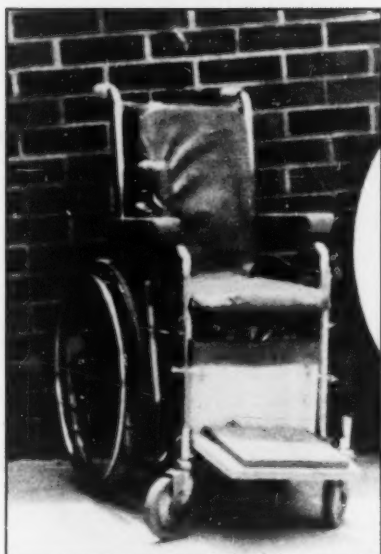
school bus driver training. Of the 18 states that fund training, the average training budget is \$180,436. Many state directors believe that driver training funding is at a critical stage and directors said they are in favor of federal funding for training. Eight states are against federal involvement and two directors had no opinion. Duane Kirk in Idaho believes that state and local districts should provide the funding.

Carrollton issues

The Carrollton church bus crash has brought many school bus safety-related issues to the attention of pupil transportation officials. Among the concerns is the capability of school buses on interstate highways. In the survey, every state reported that school buses are allowed the federal interstate system in their state. There was one exception, in South Carolina special education buses are only allowed on the highways after approval from the State Department of Education, and the vehicles are limited to 45 mph.

The Carrollton accident also has turned attention to the flammability standards on school buses. The state directors listed these fire standards as an important issue to be addressed at the 11th National Standards Conference. A question in the survey asked the directors if any school bus in their state had experienced a fire onboard in the last five years. Unfortunately, the term "onboard" was vague to some of the directors, who were not sure if the query indicated within the passenger compartment or engine compartment. Nevertheless, 19 states reported an onboard fire in the last five years, while an equal number have experienced no fires. Of the states that had fires, Oregon had the most with 15; though not all of those occurred with students onboard. Indiana and Kansas each listed 10 fires.

The state directors were asked the speed limit for school buses in their state and for the most part, the posted speed limit is applicable for school buses. Many states have differing limits for large school



Handicapped transportation was listed by the state directors most frequently the most important area of pupil transportation to be addressed at the Standards Conference.

buses versus small buses, and most states have different limits for highways and other roads. In five states — Arizona, Florida, Idaho, Rhode Island and South Carolina — the state school bus speed limit does not apply to school buses registered in other states.

National Standards

The upcoming 11th National Standards Conference in 1990 will have to face some serious issues in pupil transportation. In order to de-

Every state director but three believe their state's school bus regulations meet or exceed those adopted at the conference.

termine what effect the standards that are developed at the conference will have on the industry, the

survey asked the directors about the weight the standards carry in their state.

The questions for the survey were developed with the help of Ron Kinney of California. "We wanted to develop a set of questions to determine the degree of influence the National Standards Document has among the states," Kinney said.

Idaho, Louisiana, New Hampshire and the District of Columbia are required to *adopt and comply* with all of the standards regarding operations and specifications published in the National Standards Document. Meanwhile, an additional three states are required to adopt all the standards except the Uniform Accident Reporting Form. On the other hand, 32 states are not required to adopt any portion of the operations or specifications derived from the conference.

With the thought in mind that there are few states mandating the standards, the survey asked how many states use the document as a guideline. Twenty-eight states use the entire document as a guide in developing state standards. Every state but one (Illinois) uses at least a portion of the document to determine regular education or special education operation guidelines, or to develop specifications for school bus bodies and chassis.

Moreover, every state director but three believe their state's school bus regulations *meet or exceed* those adopted at the conference. However, the directors split on whether or not the standards should be required for nationwide adoption by the states. Twenty-four directors said no, they do not favor adoption, while 18 directors would favor it.

Overwhelmingly, the directors believe special education transportation regulations, emergency exits on school buses, and a review of the flammability of seating material are the three most important items facing the industry at the 1990 conference. Other issues of importance mentioned frequently by the directors include driver training, drug testing, educational programs, the loading and unloading zone and national leadership. 

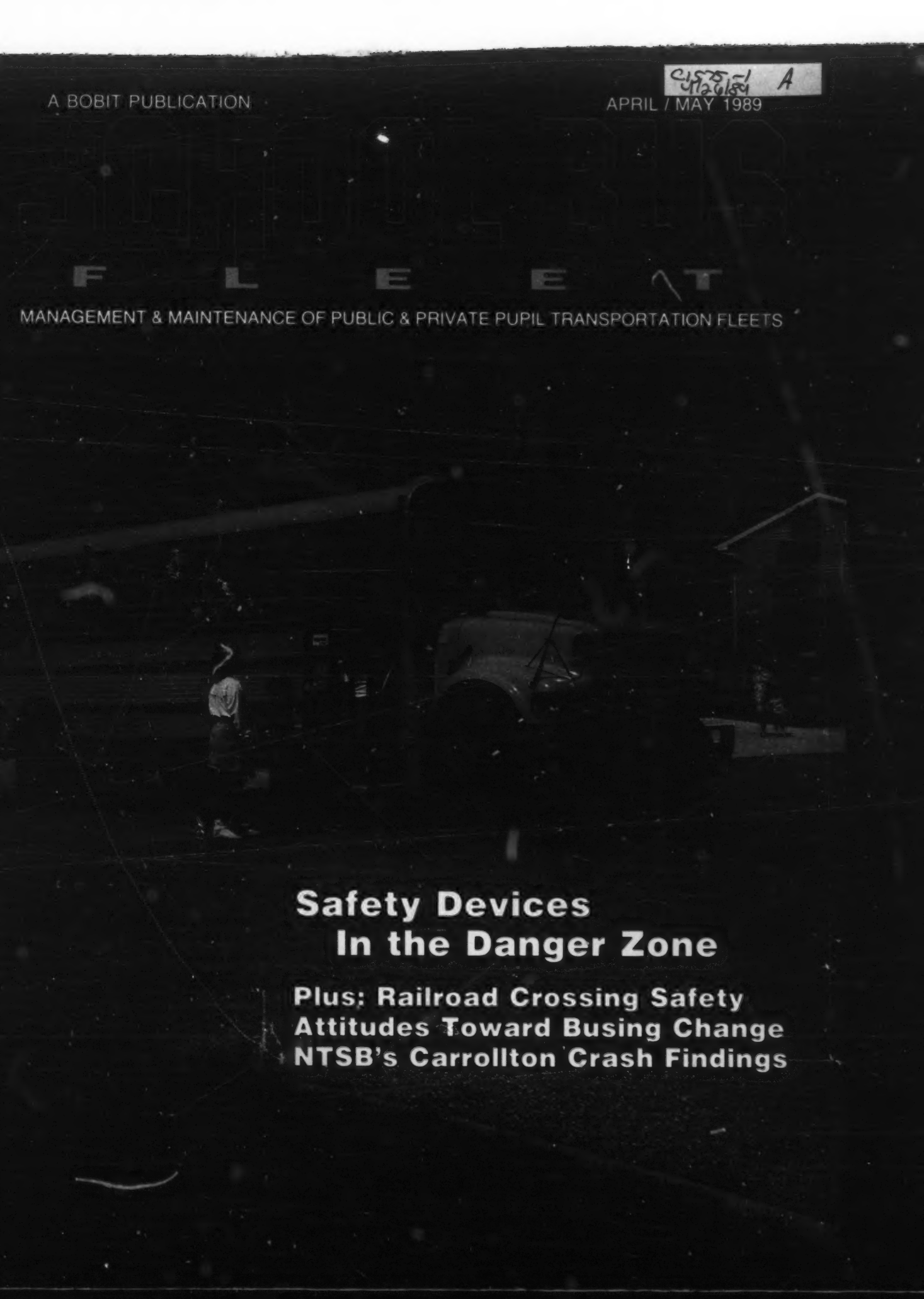
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MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS



Safety Devices In the Danger Zone

**Plus: Railroad Crossing Safety
Attitudes Toward Busing Change
NTSB's Carrollton Crash Findings**



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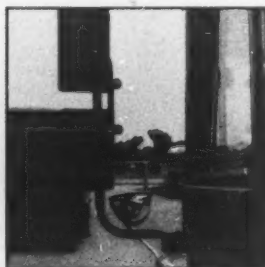
MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

Vol. 35 No. 2

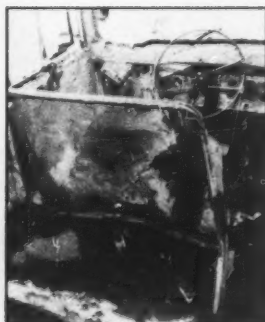
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On the cover: Wayne Corporation's Lifeguard school bus.

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Americans Finding Busing Much More Palatable Now

A new Harris poll reveals that America's attitude toward busing to achieve racial balance has changed. Those who have experienced it, look upon it favorably. But there's still work to be done.



More than one-third of all American children have been bused to achieve racial balance. The response to it has been favorable among those who've been bused.

Whether people realize it or not, attitudes have changed dramatically in the last 30 years and nowhere is that change more evident than in public opinion on race relations.

Baring that out is a recently released survey conducted by Louis Harris and Associates for the NAACP Legal Defense and Education Fund (LDF) that shows blacks and whites are ready to address race relations, and feel that strong, active leadership is needed to bring about true equality.

One segment of the broad study, "The Unfinished Agenda on Race in America," revealed that while busing of children to achieve racial balance has tripled since 1978 going

to 35 percent from 13 percent, opposition to it has declined, falling from a constant 75 percent opposed over the last three decades to only 54 percent opposed in 1988.

Among parents whose children have been bused, 64 percent report it a very satisfactory experience, and only six percent called it not satisfactory. Sixty-three percent of blacks report a very satisfactory experience, 64 percent of whites found it very satisfactory and 73 percent of all those families who have had children bused, favor busing to achieve racial balance.

"This tells me that in the period since busing has been enforced, those people who have experienced it responded favorably to it," said

LDF project director Deborah Dahl. "Those who had some resistance to it, as they went through it, seemed to have less resistance."

Busing is just one of the mechanisms used to stem segregation and achieve racial balance, and the statistics show that most people are not opposed to it as long as their children continue to receive a quality education. Most people think of busing as black students being transported to white suburban schools, but in fact it works the other way as well. White children may also be bused to schools out of their neighborhoods to achieve racial balance.

"White and black parents whose children have been bused to achieve racial balance agree that their experience with busing has been very satisfactory," said Julius Chambers, director-counsel of LDF. "And among the general public there is support for busing, provided the buses take children to high-quality schools."

Broad segment studied

LDF commissioned the study of a cross-section of 3,123 American families and 347 "persistently poor," families in eight American cities: Atlanta, Chicago, Detroit, Houston, Los Angeles, New York, Philadelphia and St. Louis. They were attempting to track the change in attitudes over racial issues over time, learn more about the persistently poor and frame an agenda for progress toward racial

equality in the United States.

Two questions on busing included in the lengthy interviews revealed that many Americans find the present system palatable. The first question, under the heading, Attitude Toward Busing, asked Americans: Do you favor or oppose busing of school children to achieve racial balance? Under the heading, Children in Family Bused to School, the second question asked Americans: Have any of the children in your fa-

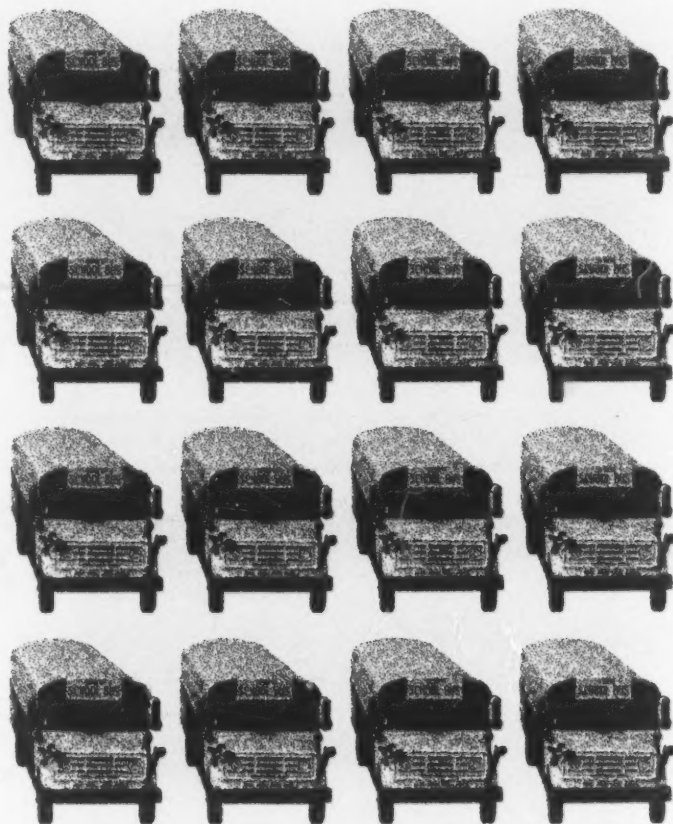
mily been picked up by bus to go to school with children of other races, or hasn't that happened?

Whites and blacks are most impacted by busing in the South. Forty-one percent of all Southern whites have experienced it in some way and 55 percent of Southern blacks have been impacted. Whites don't like it much in the South, where along with the Midwest, they find it least acceptable. Busing is most acceptable among whites in

the East and West and most acceptable among blacks in the Midwest and West.

Some rather surprising numbers did show up, however, particularly when the responses were broken down according to education, income, occupation and political bent.

Whites who have not continued their education beyond high school favor busing, 49 percent to 45 percent, but whites with a four-year college degree, who by definition



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"White and black parents whose children have been bused agree that their experience has been satisfactory."

—Chambers

are more apt to embrace attitudes strongly in favor of racial tolerance, oppose busing, 65 percent to 31 percent.

The same disparity is true for blacks. Those blacks with no more than a high-school education favor busing, 72 percent to 25 percent, and while those blacks with a four-year college degree still favor busing, 60 percent to 37 percent, that number is five points below the national norm.

The conclusion that can be reached is that although those with a higher education might be more apt to hold enlightened views on racial equality, they are still fearful their children might not receive a good education if they are part of a busing program. In other words, opposition seems to linger among those with the most enlightened views about racial justice and quality.

Dahl disagrees.

"Busing to achieve racial balance and force desegregation is a meaningless, abstract concept to those with a higher education," she said. "They are not familiar or comfortable with the idea because they can afford to send their kids to pri-

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vate schools, but those on the lower end of the socioeconomic echelon would favor busing because it could improve their station in life."

Professionals opposed

In terms of occupation, 42 percent of all blue collar workers, a higher than average number, favor busing. But 62 percent of all professionals, who are in general highly intolerant of discrimination in the workplace, oppose busing.

"We believe that steps to eliminate desegregation must be stopped and busing must continue."

—Dahl

Again, the consensus seems to show that while affluent blacks and whites support the notion of equal education for black and white children, they are still fearful their own children will not receive as good an education if they are bused. Oddly enough, 50 percent of whites who consider themselves politically liberal, oppose busing.

Overall, those who commissioned the study were pleased with the findings.

"Our primary purpose in commissioning and releasing this survey was to promote a new national commitment to equal rights, equal opportunities and equal justice," Chambers said. "I would say that the findings of the survey are encouraging and reveal a solid base of support for positive action on race relations."

However, according to Dahl, there is much work to be done in this area, particularly for the persistently poor. During the Reagan years blacks made no significant strides and there is guarded optimism that the Bush administration is amenable to advancement in the area of race relations. "Their rhetoric has been encouraging but

we'll have to see if they back it up with any action," she said.

Particularly disturbing to LDF and civil rights activists is a national phenomena called unitary status which keeps popping up before the United States Supreme Court. Essentially what the states are telling the courts with their claims of unitary status is that the goals of desegregation have been achieved and busing is, therefore, no longer necessary.

Nearly every state has brought before the Supreme Court some claim of unitary status and this worries Dahl and the LDF. With four of the more liberal members of the court now in their 70's, the future of busing is tenuous at best.

(Supreme Court justices hold their jobs for life once appointed by the president and confirmed by the Senate. The president normally chooses prospective justices according to how close their views are to



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April / May 1989

School Bus Fleet

29

ATTITUDE TOWARD BUSING

Q: DO YOU FAVOR OR OPPOSE BUSING OF SCHOOL CHILDREN TO ACHIEVE RACIAL BALANCE?

	EDUCATION										AGE						CHILD-REN BUSED	RACE			
	REGION					SEX		LESS THAN HIGH SCH	HIGH SCH GRAD	2 YR COLLEGE	4 YR COLLEGE	POST GRAD	18-29	30-49	50-64	65+		WHITE	BLACK	HIS-PANIC	ASIAN
	TOTAL	EAST	MID-WEST	SOUTH	WEST	MEN	WOMEN														
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Base	3103	764	781	1009	549	1485	1818	773	1218	560	323	219	873	1127	595	494	1099	2716	356	192	31
Favor	1284 41%	342 45%	268 34%	431 43%	243 44%	574 39%	711 44%	395 51%	481 40%	214 38%	114 35%	72 33%	499 57%	404 36%	191 32%	189 38%	515 47%	1031 38%	238 67%	118 61%	16 53%
Oppose	1873 54%	380 50%	476 61%	544 54%	273 50%	840 57%	834 52%	325 42%	690 57%	326 58%	195 61%	137 62%	343 39%	684 61%	388 65%	250 51%	548 50%	1561 57%	100 28%	85 34%	12 36%
Not Sure/Refused	145 5%	41 5%	38 5%	33 3%	34 6%	72 5%	73 5%	53 7%	47 4%	21 4%	14 4%	10 5%	31 4%	39 3%	16 3%	55 11%	36 3%	124 5%	18 5%	9 4%	3 10%
Unweighted Base	3123	797	713	1048	567	1465	1858	458	1118	674	539	324	662	1468	575	395	1076	2008	1005	168	110

his own. If any of the present liberal justices pass away or resign, many civil libertarians fear President Bush will appoint more conservatives to take their place, thus jeopardizing civil rights gains.)

Court concerns the LDF

"This is a very politically right, very conservative court right now that thinks that civil rights is a thing of the past," Dahl said. "If unitary status is declared, LDF believes we'll lose the gains of the past and actually take a step backward. Right now we're just trying to hold onto what we've got and that's not a good position to be in, either.

"We believe that steps to eliminate desegregation must be stopped and positive steps like busing must continue."

In the late 1950's Americans paid great heed to race relations, and the movement probably peaked with the monumental 1963 march on Washington, which culminated in Dr. Martin Luther King's famous "I Have a Dream," speech. Race relations remained in the forefront of the American psyche in the latter years of the 1960's when many of the nation's cities exploded with urban violence. However, according to Chambers, things have remained somewhat dormant since then and the movement has actually moved backward since 1981.

Many people have mistaken that dormancy for contentment.

"A lot of white Americans think

there is no discrimination anymore because there's no great marches and the cities aren't exploding like they were in heyday of the 1960's," Dahl said. "They think that because of that blacks are satisfied and that's why they're not paying any attention to it. Blacks feel that there is still a lot of discrimination, but they are just not as overt about it. Right now discrimination and the response to it is more subtle."

That's why Dahl, Chambers and the LDF are so concerned about unitary status and the importance of programs like busing that continue to desegregate America, especially in education. Seventy four percent of all blacks in the persistently poor class polled say they would like their children to live better lives than they had; 59 percent said staying in school was the most important thing they could do to improve their lot; and 58 percent said getting proper training to hold down a job was extremely important.

Clearly, having the opportunity to receive a quality education could be the ticket to attaining those goals. And, if those opportunities can only be attained elsewhere, then busing is the answer for some.

"The purpose of busing is to desegregate the schools and provide quality education for those who really need it," Dahl said. "Busing is just one way to achieve desegregation and it's one that is the most consistently successful."

One-third Of All Pupils Have Been Bused

The NAACP Legal Defense and Education Fund (LDF) is a separate entity and has no affiliation with the NAACP. Founded in 1940, the LDF was involved in the Brown vs. Board of Education case and has argued a number of civil rights issues.

The LDF commissioned Louis Harris and Associates to do the survey, "The Unfinished Agenda on Race in America," in September, 1988. Some of the findings concerned the attitudes Americans have toward busing to achieve racial balance, such as:

- Thirty-five percent of all American school children have been picked up by bus to attend school with children of other races. Breakdown by region reveals it's happened to 38 percent of children in the East, 29 percent in the Midwest, 43 percent in the South and 32 percent in the West.

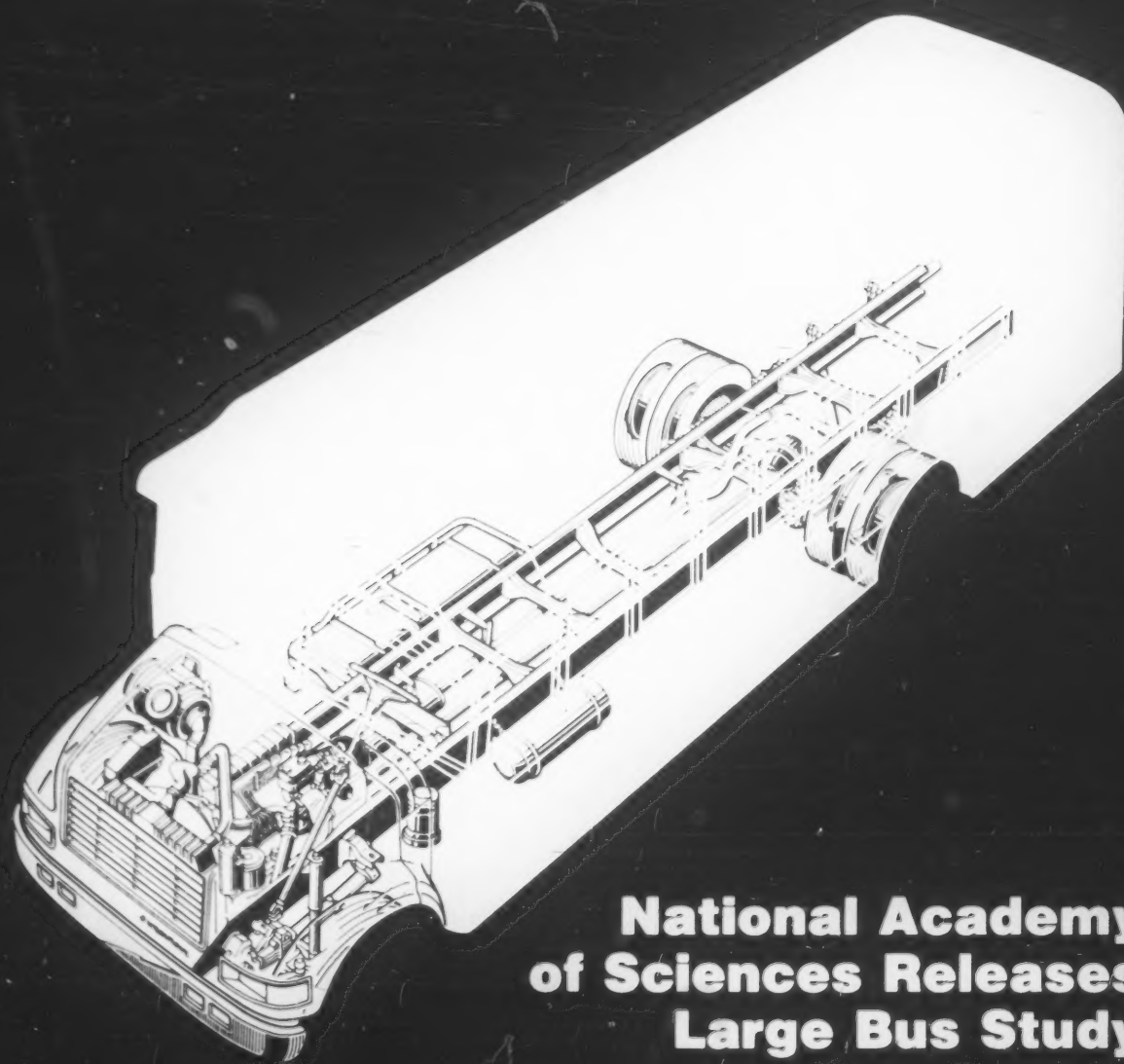
- While only 54 percent of all Americans polled oppose busing, the number is much higher in the Midwest where 61 percent oppose the notion. Fifty percent oppose busing in the East and West, and 54 percent oppose it in the South. Forty-one percent of those polled favor busing.

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JUNE / JULY 1989

SCHOOL BUS

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS



**National Academy
of Sciences Releases
Large Bus Study**

**The State of Private Contracting
SBF's Aftermarket Study**



A BOBIT PUBLICATION

SCHOOL BUS FLEET

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

Vol. 35 No. 3

June / July 1989



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Congressionally Ordered School Bus Study Released

Research Council study concludes alternate safety measures may be better than seat belts on school buses; Council urges replacement of pre-77 school buses.

"The overall potential benefit of requiring seat belts in school buses is insufficient to justify a federal standard mandating installation," the National Research Council committee concluded. In an 18-month study of the effectiveness of safety measures on school buses, the committee examined a variety of safety measures and the cost effectiveness of each measure.

To conduct the study, the NRC, the operating arm of the National Academies of Sciences and Engineering, assembled a committee of experts in highway safety, pediatrics, school transportation, bus manufacturers, occupant-restraint systems, and public policy analysis.

What follows is a verbatim transcript of the executive summary of the report. The editors of SCHOOL BUS FLEET will present additional portions in coming issues.

Each year in the United States 10 children on average are killed while riding to and from school or school-sponsored activities in large, "Type I" school buses — buses with gross vehicle weight ratings (GVWRs) greater than 10,000 lb. — which make up 80 to 85 percent of the nation's school bus fleet. Another 2 children are killed while riding in other vehicles used as school buses, and 38 children are killed in loading zones around school buses. In addition, about 480 children are seriously injured while riding in school buses, and 160 are seriously injured while boarding or leaving school buses.¹

Although the death or injury of

any child transported by school bus is a cause for concern, the safety record of school buses is good considering the amount of travel involved. In a typical year, the nation's 390,000 school buses travel nearly 4 billion mi. to transport 25 million children to and from school or various school-sponsored

Proposed Safety Methods & Their Effectiveness in Reducing Deaths & Injuries

Seat belts	0-20%
Higher seat backs	0-20
School bus monitors	25-75
Crossing control arms	5-25
Electronic sensors	10-50
Mechanical sensors	10-50
Stop signal arms	0-30
External loud speaker systems	0-20
Pupil education programs	0-20

activities. Even though school buses transport more passengers per trip, the rate of occupant fatalities per mile driven for school buses is about one-fourth that for passenger cars.² Nevertheless, the public expects that the federal and state governments, as well as local school districts and private school bus contractors, will continually review the safety of school bus transportation and take all reasonable precautions to protect children who travel by school bus.

Effective April 1, 1977, the National Highway Traffic Safety Ad-

ministration (NHTSA) issued three new federal motor vehicle safety standards and modified four others to enhance the safety of school bus transportation. For post-1977 school buses (i.e., buses manufactured after April 1, 1977) with GVWRs of 10,000 lb. or less, these standards require that passenger seats be equipped with seat belts (i.e., lap belts). For the more common Type I school buses with GVWR's greater than 10,000 lb., the standards do not require seat belts, but instead rely on strong, well-padded, energy-absorbing seats and higher seat backs to "compartmentalize" and protect passengers during a crash. NHTSA concluded that the compartmentalization requirements are adequate and that seat belts are not warranted on the larger school buses.

Other individuals and organizations, however, argue that seat belts are warranted on all school buses and that they should be installed at the time of manufacture. In the last several years a number of school districts, and one state (New York), have begun ordering seat belts as standard equipment on all new school buses.

The continuing debate over seat belts on school buses led to a provision in the Surface Transportation and Uniform Relocation Assistance Act of 1987 requesting that the National Academy of Sciences examine the causes of school bus accidents and evaluate the effectiveness of safety measures, including seat belts, that might better protect children while they are boarding, riding, and leaving school buses.

Post-1977 school buses

The committee believes that the standards issued by NHTSA in 1977 have substantially improved the crashworthiness of school buses and have made a mode of transportation that was already quite safe even safer. All states, local school districts, and private contractors that are still operating pre-1977 school buses should replace these vehicles with post-1977 school buses as rapidly as possible. Private organizations such as church groups that purchase and operate used, pre-1977 school buses should be in-

Most members of the committee believe, therefore, that states and local school districts should not be encouraged to equip new buses with seat belts. Nevertheless, some members believe that a uniform occupant-restraint policy for all motor vehicles is important enough that states and local school districts should be encouraged to equip new school buses with seat belts.

States and local school districts that choose to require seat belts in buses must ensure that all school bus passengers wear them and wear them correctly. Any program

Besides seat belts, a variety of other programs and devices that are available might better protect school bus passengers during crashes. Although it is not possible to rigorously quantify the safety benefits of these measures, the committee believes that two safety measures merit immediate action, and several others are worthy of further research, development, and evaluation.

- *Prohibit standees.* If the school bus safety standards issued by NHTSA are to be effective in reducing injuries, all passengers must be

Annual Costs for Nationwide Use and Reductions in Fatalities and Injuries

Safety Measure	Effectiveness ^a	Annual Cost (\$ millions) ^b	Lives Saved	Injuries Prevented		
				Incapacitating	Nonincapacitating	Possible
Seat belts ^c	0-20	43	0-1.0	0-48	0-238	0-665
Higher seat backs	0-20	6	0-2.4	0-95	0-475	0-1,330
School bus monitors	25-75	1,900	12.5-37.5	159-478	655-1,964	1,763-5,290
Crossing control arms	5-25	15	0.8-4.0	2-9	3-14	5-24
Electronic sensors	10-50	91	2.4-12.0	6-29	9-43	14-71
Mechanical sensors	10-50	131	2.4-12.0	6-29	9-43	14-71
Stop signal arms	0-30	5	0-1.5	0-14	0-21	0-35
External loud speaker systems	0-20	11	0-2.4	0-21	0-32	0-52
Pupil education programs	0-20	14	0-6.3	0-28	0-42	0-69

^aPercent reduction in deaths and injuries of target populations given in Table 6-1.

^bFor stop signal arms, the data in this table assume that 56 percent of the nation's school bus fleet is already equipped. For other measures, current use is low enough to disregard.

^cFifty percent use rate assumed.

SOURCE: Fatal Accident Reporting System

formed that these buses do not meet current standards for newly manufactured buses and that they should rigorously maintain these vehicles and provide safety instruction, including evacuation, for all passengers.

Seat belts

If all large, Type I school buses operated in the United States were equipped with seat belts, one life might be saved and several dozen serious injuries avoided each year. On the basis of this estimate, the committee concludes that the overall potential benefit of requiring seat belts in large school buses is insufficient to justify a federal standard mandating installation. The funds used to purchase and maintain seat belts in the nation's fleet of school buses—more than \$40 million/yr.—might better be spent on other school bus safety programs and devices to save more lives and reduce more injuries.

to require the use of seat belts on school buses can be effective only if it has the support of the school board, school administrators, teachers, parents, and school bus drivers.

Finally, retrofitting any large school bus with seat belts can present problems. On pre-1977 school buses, seat belts used in conjunction with the lower, less-padded seat backs typical of those buses might actually increase the severity of injuries. Consequently, seat belts should *not* be installed on buses that were manufactured before April 1, 1977. For post-1977 buses, retrofitting with seat belts is more complicated and costly than installing seat belts at the factory as original equipment, and therefore is generally not recommended.

Other measures to improve the safety of school bus passengers during crashes

properly seated. Passengers who are out of position during a school bus crash may sustain unnecessary injuries while endangering others as they are thrown about inside the passenger compartment. The committee recommends that all states prohibit standees on school buses operated by or for public or private schools.

- *Higher seat backs.* Raising the minimum height of school bus seat backs from 20 to 24 in. [as measured from the seating reference point (SRP)] would provide passengers with added crash protection, particularly for the head, at little added cost to the purchase price of a school bus. Concerns have been raised about possible interference of higher seat backs with a driver's ability to monitor student behavior and about possible noncompliance with an existing standard that addresses window emergency exits. However, two states now require higher seat backs and

report no operational problems or difficulty in complying with the NHTSA standard governing emergency exits. The committee believes that any problems associated with higher seat backs can be overcome and that NHTSA should revise its standards to require that school bus seat backs be at least 24 in. above the SRP.

In addition to the standard lap belts that are currently being used in school buses in a number of school districts in the United States, three other seat and restraint systems were considered: lap bars, lap and shoulder belts, and higher-backed rear-facing seats with lap belts. It is too soon to recommend any of these systems for general use; additional research and testing are needed.

To enhance and extend the structural integrity of school bus bodies, the committee recommends that NHTSA further study the feasibility of (a) improving the perimeter structure of school buses for greater side-impact protection and

(b) making various body components, such as ventilation spaces and access panels, less hazardous during crashes.

Finally, to make school buses more visible and avoid nighttime accidents, NHTSA should consider the potential cost and safety effectiveness of using reflective materials on school buses and determine if minimum standards for the use of such materials are warranted.

Measures to improve the safety of school bus passengers after crashes

Post-crash fires in school bus accidents are rare. No evidence was found that any school bus accident fatalities resulted from fire or smoke inhalation during the study. Nevertheless, the church bus crash and fire in Carrollton, Kentucky, May 14, 1988, that involved a pre-1977 bus and resulted in the deaths of 27 bus occupants serves as a grim reminder that post-crash fires can and do occur in bus accidents. Partly as a result of the Car-

rollton crash, both industry and government are considering measures that might make fuel systems on school buses safer (relocating the fuel tank, substituting diesel engines for gasoline engines, etc.).

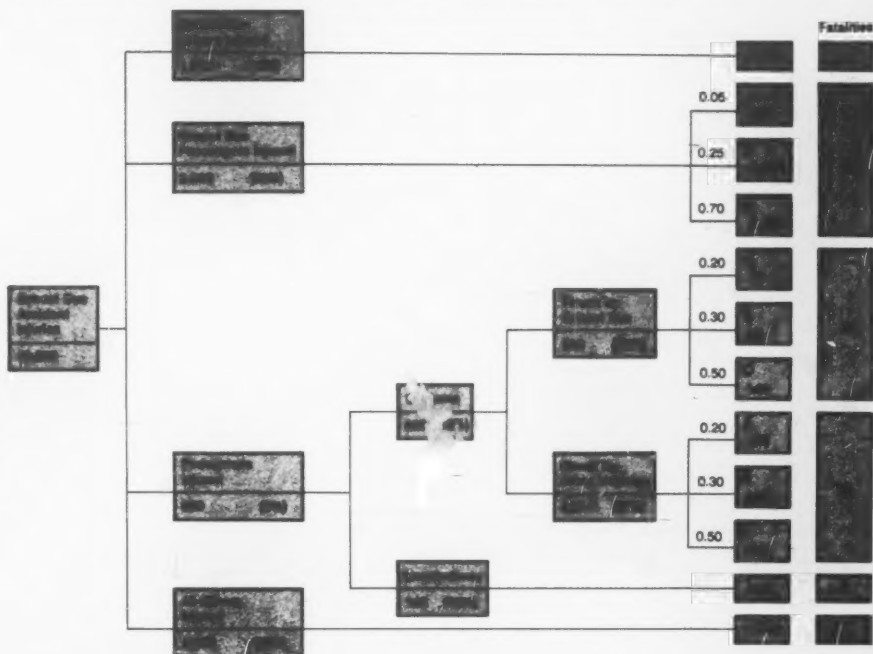
Research is also progressing in the development of new materials that have the energy-absorption characteristics that are necessary for school bus seats and at the same time are fire resistant or fire retardant.

NHTSA should monitor this research to determine if and when these new materials should be required in school bus construction by federal standards for school bus construction.

NHTSA should reconsider the minimum number of emergency exits that are required on school buses. Under current standards, the number of emergency exits on school buses is independent of seating capacity. School buses with higher seating capacities should have more emergency exits. In addition, NHTSA should prohibit the

Annual Fatalities and Injuries in School Bus Accidents

This chart shows the 19,000 school bus accident injuries and 149 fatalities that occur each year in the United States. Of the injuries and 149 fatalities, only 35% occurred after being struck by a school bus.



SOURCE: Fatal Accident Reporting System

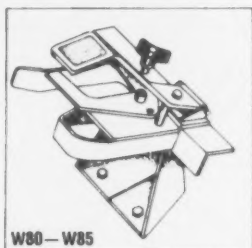
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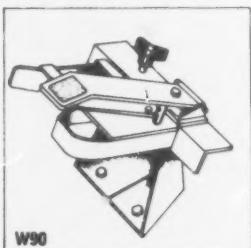
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installation of seats that obstruct emergency doors.

Measures to improve the safety of children in school bus loading zone

School bus accident data show that children are at a greater risk of being killed as pedestrians in school bus loading zones than as passengers on school buses. Of the 38 children killed each year in loading zones around school buses, two-thirds are struck by school buses. A larger share of school bus safety efforts should be directed to the loading zone.

Of the several safety programs and devices proposed to reduce the number of deaths and injuries in school bus loading zones, five should receive immediate attention. Others merit additional field testing and evaluation.

- *School bus driver training.* The requirements for school bus driver training vary considerably among the states; for example, some states do not require school bus drivers to be trained in school bus operation or pupil management before transporting children to and from school. The committee recommends that all states establish minimum criteria for school bus driver training and that all drivers receive training before transporting children.

- *Stop signal arms.* Currently, 28 states require the use of stop signal arms—stop signs with flashing red lights that extend from the left side of the school bus when it stops to load or unload students. Evaluations of this device have demonstrated its effectiveness in stopping other traffic at school bus stops. The committee recommends that NHTSA require installation of stop signal arms on all new school buses and that states and local school districts consider retrofitting older buses with stop signal arms.

- *School bus routing.* The basic principles of school bus routing are well known. These principles should be consciously applied and should not be sacrificed for operational efficiency, student convenience, or political expediency. States and local school districts should review their school bus routes annually and take all practical measures to ensure that the routes have been safely planned and are being followed as intended.

- *Pedestrian safety education.* States and local school districts are encouraged to provide behavior-based pedestrian safety education programs to children in grades K through 6. These programs should stress safe and appropriate behavior in school bus loading zones. NHTSA should complete the development of its pedestrian education program and assist the states and local school districts in their efforts to provide instruction in pedestrian safety.

- *Cross-view mirrors.* By federal standard all new school buses must be equipped with a mirror that provides the driver a view of the road immediately in front of the bus. NHTSA should reexamine this standard to determine if current specifications for mirrors can be modified to give the driver a better view of the area in front of and immediately beside the bus.

Other measures to prevent children from being

struck by their own school buses are in various stages of development. Electronic and mechanical devices to detect the presence of a child near the bus have recently come on the market. Crossing control arms that force children to cross far enough in front of the bus so that they can be seen by the driver are also now available as an option on school buses. These devices should be field tested and evaluated by NHTSA as well as by states and local school districts.

To prevent children from being struck by other vehicles in school bus loading zones, the committee recommends that states field test and evaluate the California practice of requiring the school bus driver to escort the children in grades K through 8 across the street or highway when they leave a school bus. Similarly, states and local school districts are encouraged to field test external loud speaker systems that allow the driver to communicate with children who have left the bus and tell them when it is safe to cross a street or highway.

Other findings and recommendations

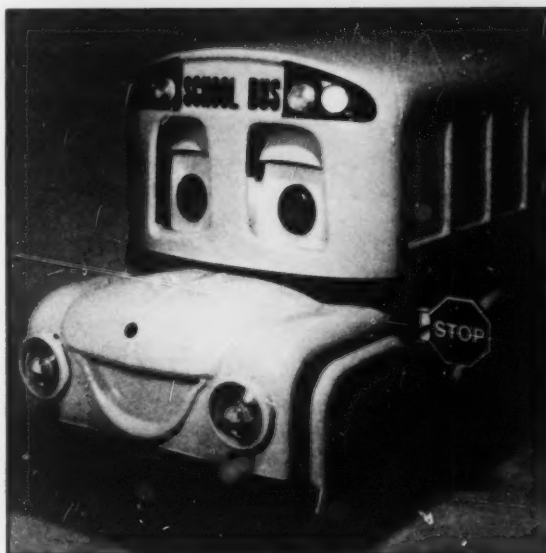
A number of the recommendations call for field testing and evaluating different school bus safety devices (e.g., with external loud speaker systems) or retaining some measures (e.g., seat belts) as options for states and local jurisdictions. Although these recommendations may encourage additional variability in the construction of school buses, the committee urges the states, in cooperation with NHTSA, to work toward more universally acceptable standards for school bus construction and equipment. Nonuniformity of standards among states adds to the cost of each school bus sold and makes the purchase of newer, safer buses more expensive.

Finally, the study was seriously hampered by a lack of reliable and valid school bus accident data and a dearth of information on the effectiveness of potential school bus safety programs and devices. The committee recommends that NHTSA work with the states, and other interested organizations, to upgrade and standardize school bus accident data collected by the states. As the quality of school bus accident data improves, these data should be used to better define why and how children are being injured in school bus accidents and to evaluate the effectiveness of various school bus safety programs and devices in reducing the number of accidents, deaths, and injuries.

Notes

1. The term *serious injury* as used in this report refers to "incapacitating" injuries that range from severe lacerations or broken limbs to quadriplegia or coma (see Chapter 3). Serious injuries are not necessarily life-threatening and most do not result in permanent disability.
2. The safety record of school buses reflects, in part, the larger size and higher center of gravity of school buses as well as safer operating conditions (e.g., more travel on weekdays during daylight hours) when compared with passenger cars.

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Aftermarket Study Reveals Industry Maturation

Brand preference has come to play a greater role in buying and specifying throughout pupil transportation; the trend toward diesel use continues to grow.

Nearly half the school buses nationwide are now diesel fueled. Brand preference is playing an increasingly greater role in the industry's buying and specifying decisions.

These are two findings to come from the just completed *SCHOOL BUS FLEET* Aftermarket Study. Conducted by the editors of the magazine, the study randomly surveyed 500 readers who operate district- and contractor-owned school bus fleets, in proportion to their readership of the magazine.

There are two portions to the study. The larger segment, representing 400 names, was sent to both district and contractor subscribers. It generated a 28 percent response overall. The smaller segment, directed exclusively to directors of pupil transportation, generated a 49 percent response. This methodology ensures a representative sample of the industry.

This study continues a series of marketing and maintenance studies of the pupil transportation industry that the editors conducted in 1983,

1985 and 1987. Findings reported here will be compared with the earlier results where the question and sample size are comparable.

Fleet Size

Respondents reported owning and operating a total of 9,470 school buses. Seventy five percent of these were conventionals, 11 percent transit-style and the remainder small vans.

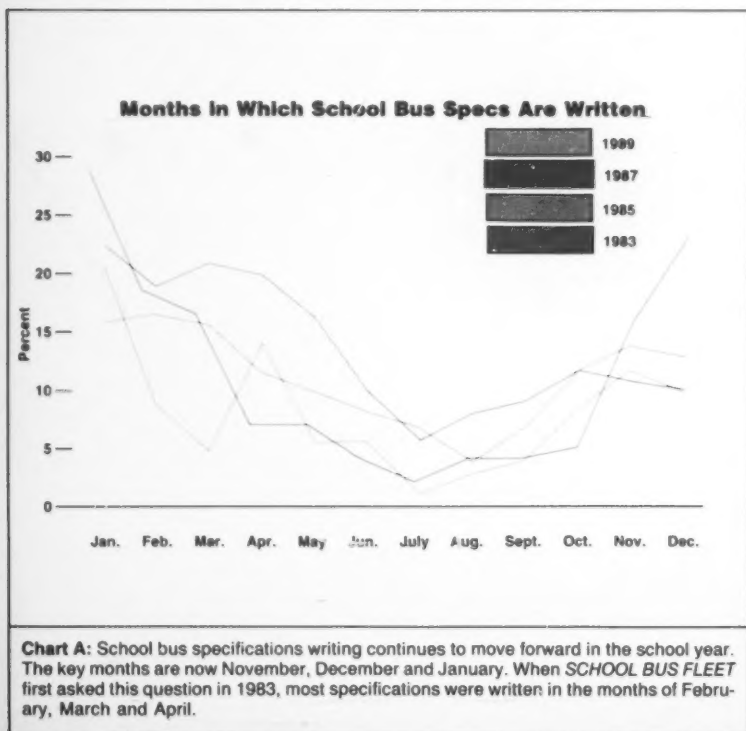
Of the vehicles reported, transit buses are replaced every 12 years and operating a total of 9,470 school buses with an average of 214,218 miles of use. Conventional school buses are replaced every 11 years with an average of 145,292 miles of use; meanwhile, small vans are replaced after 9.5 years with 132,050 miles of use. These findings are consistent with earlier survey results.

Of the 159 fleets reported in the survey, districts reported an average of 62 buses each while contractors reported an average of 55 buses each.

Specifications

Among the most important findings is a confirmation of a trend first identified in 1985. The industry continues to move its bus specification writing toward the beginning of the school year. As Chart A shows, overall, November, December and January are the prime months in which the industry writes specifications for new school buses.

Six years ago, when this question was first asked, January through March were the most common months for spec'ing. Even two



years ago, the writing activity occurred principally in January, though it was edging toward December.

This trend toward earlier specification writing indicates a continuing maturation of the industry, as operators increasingly buy the year around. Manufacturers constantly seek to shift production year around, too, to avoid the burden of completion and delivery of new school buses exclusively in the late summer months.

Interestingly, the months of November and December are more heavily favored by district fleets, while January seems to be the preferred month among contractor fleets.

While this question answers when school buses are specified, it didn't answer who specifies them. Thus, the study asked pupil transportation directors (this question was directed only to them) two related questions. First, does an individual or a committee prepare the specifications for new school bus

Composition of Average School Bus Spec Committee

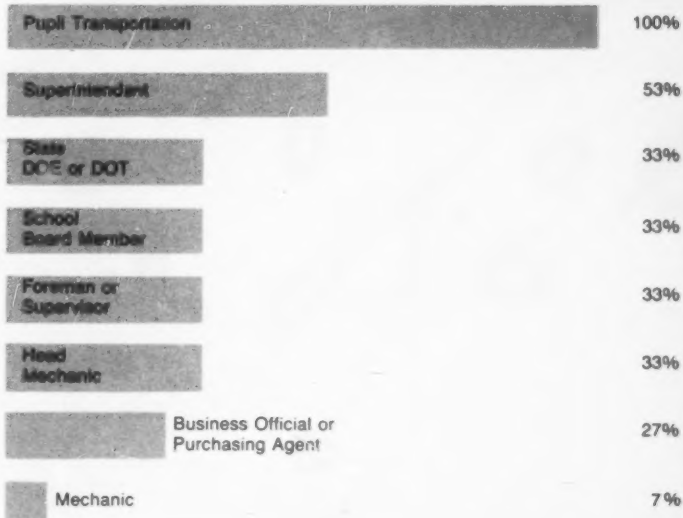


Chart B: When a committee is called to write school bus specifications, the study showed the membership profile of the committee includes these titled individuals. The study showed that committees are called only 35 percent of the time. The remainder of the time the specs are written exclusively by the pupil transportation director.

School Bus Fuel Sources 1983 - 1989

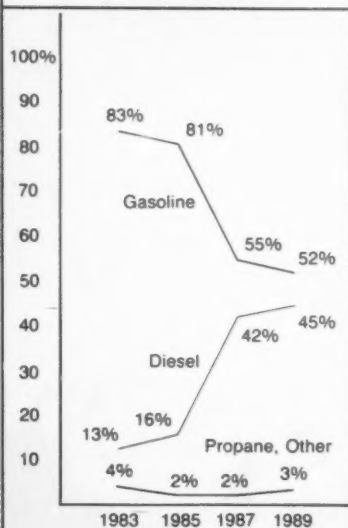


Chart C: Nationwide, the use of diesel fuel in school buses has increased dramatically while the use of gasoline fuel has declined. The phenomenon is partially due to the industry-wide effort to replace pre-1977 school buses.

purchases? And second, if done by committee, who serves on the committee?

To the first question, the reply was that an individual wrote the specifications 65 percent of the time, while a committee was relied on 35 percent of the time.

As Chart B shows, for those district-owned fleets that rely on committees for spec writing, the committee is typically composed of several titled individuals. The pupil transportation director serves on the committee all the time; the second most common titled individual is "superintendent" followed by "state DOE or DOT," "head mechanic" and "school board member."

What this means is that the pupil transportation director is the most important specifying influence in the industry; he or she serves in this important role every time, whether in an individual capacity or on the committee.

It is significant that this important responsibility is handled so heavily by staff level individuals

industry-wide. An assumption has been made that school board members are more involved in school bus buying decisions; study results do not seem to bear out that assumption.

The study disclosed that only 35 percent of all school district fleets have a mandatory replacement age for their school buses. Meanwhile, 48 percent of all contractors report their company has a mandatory retirement. The mandatory retirement age for both districts and contractors is about 10 years.

Purchasing Responsibility

The editors also asked about purchasing responsibility.

Respondents were asked to check one of the four choices which describe purchasing responsibility: recommend decision, final decision, serve on a committee, and no influence. Overall, 51 percent of all respondents replied they recommend, 31 percent replied they make the final decision and 12 percent serve on a committee; only six percent reported they have no respon-

sibility for school bus purchasing.

Thus, 94 percent of all respondents to the *SCHOOL BUS FLEET* Aftermarket Study have purchasing responsibility for school bus acquisitions. The only shift in practice this question revealed was that in 1983 and 1985, a greater percent — 12 percent and 16 percent respectively — had no purchasing influence at all.

These data indicates that responsibility for bus acquisition clearly is a staff function. It is not a function that is being shunted off onto the school board.

Brand Preference

Survey results showed that brand preference of various products and components continues to increase.

Leading the way is an 18 percent increase in bus body brand preference over the past two years. Now, 71 percent of *SCHOOL BUS FLEET* subscribers report they have a bus body brand preference. When the editors first asked this question in 1983, only 50 percent of

respondents said they had a bus brand preference; by 1985 that figure had grown to 60 percent. Clearly, a trend has emerged in this area.

Meanwhile, chassis preference has grown to 73 percent this year from 62 percent in 1985.

To round out this series of questions, the editors added a question about engine brand preference; 74 percent of respondents replied affirmatively.

In addition, the study asked whether respondents have a brand preference about 16 other products, items such as tires, batteries, mirrors, shocks, lights, etc. Of these a majority of respondents replied they have brand preference for only four items — tires, oils and lubricants, brakes and filters.

Since this question was last asked in 1983, brakes and filters have joined the list as products selected in part because of brand preference.

Interestingly, by margins of 12-to-1 and more, most operators reported they purchased most of

these 16 items for their fleets within the past 12 months.

This clear movement toward brand preference of the chassis, bus bodies, engines, tires, oils, lubricants, brakes and filters shows the growing influence of product quality, performance, customer service, promotion and advertising. It also suggests that suppliers to the industry will have to work harder in coming years to gain market penetration, for pupil transportation is increasingly an arena in which brand preference is a key factor in the specifying and buying decision.

The move toward brand preference may be reflected in the growing parts budgets of most operators. Respondents were asked to report "the amount your district/company spends annually for parts (excluding oil, fuel and tires)." They reported a whopping 88 percent increase in their parts budgets, since the study last asked this question in 1985.

In the most recent study, respondents overall reported parts bud-

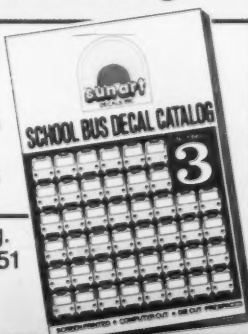
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gets of \$59,248, compared to \$31,422 four years ago. Districts reported average parts budgets of \$70,507 while contractors reported average parts budgets of \$42,538.

Alternative Fuels

Another important trend is the continuing movement toward diesel-fueled school buses. Fully 45 percent of the buses are now diesel-fueled while 52 percent of the fleet is gasoline-powered. The accompanying Chart C shows the dramatic growth of diesel fuel throughout pupil transportation over the past six years. When the study first asked this question in 1983, only 16 percent of all school buses were diesel-powered.

It is likely that as the industry continues to replace pre-1977 buses, diesel will be the fuel of choice. Manufacturers uniformly report that they see more and more orders for diesel-powered school buses.

Ironically, as the trend toward diesel fuel takes hold, the federal government and some state gov-

ernments — notably California — are beginning to encourage the use of alternative fuels such as methanol, ethanol or propane.

According to the current study results, only about three percent of school buses nationwide are fueled by these other fuels; this percentage has remained remarkably consistent during the past several years.

(Editor's note: Ironies abound in the move toward alternative fuels. Diesel fuel was viewed as an alternative to gasoline when it was introduced more than five decades ago. Further, when automobiles had come into popular usage several decades before then, gasoline was viewed as an environmentally clean fuel source. It was hailed as a technological solution to the replacement of the environmentally unsound, to say nothing of unsightly, mountains of horse manure, produced by the principal motive sources of those days—horses—which littered the nation's urban centers at the turn of the century.)

Other findings include:

- The usage of engine and transmission lubricating oil is on the upswing. Overall survey respondents reported using 1,270 gallons per fleet, a 30 percent increase over 1987 usage. Interestingly, district fleets report using nearly two-and-a-half times as much of this product as contractors do.

- More than half, 53 percent, of the nation's school buses are equipped with automatic transmissions; 47 percent are equipped with manual transmissions.

- Overall, the average fleet reported spending \$21,138 annually for the purchase of new tires and \$5,244 annually to lease tires.

The editors of *SCHOOL BUS FLEET* plan to conduct this study again two years hence. In the meantime, the survey clearly shows trends toward specification writing earlier in the school year, brand preference, increased parts budgets, increased use of lubricating oil and a continuing move toward dieselization.

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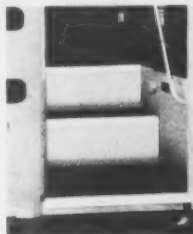
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June / July 1989

School Bus Fleet

59

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OCTOBER / NOVEMBER 1985

SCHOOL BUS

F L E E T

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

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**Exclusive Top 100 School
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**Scheduling Multiyear
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SCHOOL BUS

FLEET

MANAGEMENT & MAINTENANCE OF PUBLIC & PRIVATE PUPIL TRANSPORTATION FLEETS

Vol. 35 No. 5

October / November 1989



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SCHOOL BUS

F L E E T

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TOP

Survey Finds 100 Largest School Bus Fleets

The fifth annual survey of the Top 100 fleets reflects the emergence of the Big Four contractor firms, and robust activity among school district fleets nationwide.

The Top 100 school bus fleets in the United States and Canada own and operate slightly less than one quarter of the total fleet of school buses in service. That is according to the 1989 **SCHOOL BUS FLEET** Top 100 Fleet Survey.

Rankings are made according to *total fleet size*, that is the sum of both large school buses, i.e. conventional style and transit style, and small school buses, i.e. van and handicap rated at 10,000 lbs. GVW. These figures are presented in the column titled, "Fleet Size, 1989 Fleet."

Results are presented separately according to industry segment. School district fleets are presented first and ranked against other school district fleets, followed by contractor fleets, also according to their ranking relative to other contractor fleets. No attempt was made to rank the two segments against each other. The reason for this duality is simply that many of the fleets reported by school districts are actually contracted fleets.

Our primary objective was to find 100 fleets, not a predetermined number of fleets from each segment. Thus, the 100th fleet reported turns out to be a contractor fleet; it operates 148 school buses. Having reached the 100th fleet we eliminated all other respondents. Altogether, the survey ended up with 66 school district fleets and 34 contractor fleets.

Obviously, 100 percent of the buses in the contractor fleets are under contract to school districts somewhere, though not exclusively to the school districts reported herein. Altogether, the 34 contractors report operating 2,288 separate

contracts with school districts, ranging from 718 by Laidlaw down to one for several companies.

Further, the data shows that of the 66 school districts in the survey, 26 districts report contracting 16,120 school buses or 61.5 percent of their fleets.

The identification of contract buses in district fleets needs to be kept in mind to understand other data. For example, contractors report carrying 2,934,374 pupils daily, one way. Meanwhile, school district respondents report carrying 2,370,968 pupils daily, one way. Some of those are the same students.

Because of the Canadian ownership of the largest contractor, Laidlaw Transit, we decided to include Canadian fleets this year. As a result, several all-Canadian companies are reported for the first time this year, too.

Laidlaw's totals are actually reported twice, once for its larger U.S.-based fleet and a second time for its smaller Canadian-based fleet. Altogether, the two Laidlaw fleets total 21,521 school buses.

That distinction was also made in the case of Charterways Transportation (in Canada) and National School Bus Service (in the United States), which are both owned by a Canadian conglomerate.

Another significant item is the number of school buses both segments expect to buy during the coming school year. That data is unadulterated, that is, school districts only reported buses their district will acquire *and own* since they have no way of knowing what their contract operators may acquire.

Fully 80 percent of all respondents plan to acquire (or are in the

process of acquiring) new school buses for the 1989-90 school year. Thus, 49 school districts plan to acquire 2,309 school buses, while 30 contractors plan to acquire 6,114 school buses for the 1989-90 school year. These totals represent only new bus procurements among contractors and not growth that may occur as a result of future acquisitions of other contractor companies.

This latter fact had a bearing on survey results in other ways, however. At least three contract fleets believed to be large enough to qualify for the Top 100 ranking declined to provide information about their fleet size for fear of sparking interest in their company from among other acquisition-minded contractors.

One trend that has appeared since **SCHOOL BUS FLEET** began these surveys is the emergence of the Big Four national contracting firms: Laidlaw Transit, Ryder Student Transportation, Mayflower Contract Services and National School Bus Service. In the mid-Eighties only two of these companies, then both under different ownerships, existed. The Big Four are followed closely by half a dozen regional firms, some of which are known to have national aspirations.

One final note. Seventeen fleets, including ten contractor companies (counting Laidlaw as a single entity) and seven school districts, operate fleets of 1,000 or more school buses.

Editor's note: If your fleet was omitted from this year's survey, please send a note to that effect to Top 100 Fleet Survey, SCHOOL BUS FLEET Magazine, 2512 Artesia Blvd., Redondo Beach, CA 90278.

Largest 100 School Bus Fleets

'89	District Listing	Fleet Size				Fleet Change	
		Large Bus	Small Bus	Pupils Daily	Percent Contracted	1988 Fleet	± Over 1988
1	New York City Board of Education New York City, N.Y.	1983	1286	136,000	100	3269	+574
2	LA Unified School District Los Angeles, Calif.	2895		80,000	46	2695	+264
3	Chicago Public Schools Chicago, Ill.	1875	1015	44,000	100	2890	+195
4	Milwaukee Public Schools Milwaukee, Wis.	1150	450	57,000	100	1600	+400
5	Fairfax County School District Alexandria, Va.	972	255	95,000		1227	+59
6	Dallas County Schools Dallas, Tex.	729	387	46,000		1166	+116
7	Philadelphia School District Philadelphia, PA	864	180	33,000	1	1054	+45
8	Prince Georges County School District Upper Marlboro, MD	727	262	74,125		989	+118
9	Houston Independent School District Houston, Tex.	619	353	37,000		972	+95
10	Dade County Public Schools Miami, Fla.	965	5	55,000		970	+230
11	Montgomery County School District Rockville, Md.	898		64,000		896	+14
12	Jefferson County School District Louisville, Ky.	647	235	64,000	19	682	+86
13	Hillsborough County School District Tampa, Fla.	726	120	67,000		846	-1
14	Hawaii Department of Education Honolulu, Hi.	504	235	39,000	98	793	+38
15	Charlotte-Mecklenburg School District Charlotte, N.C.	759		51,000		759	+84
16	Duval County School District Jacksonville, Fla.	620	222	50,000	100	742	+68
17	Minneapolis Public Schools Minneapolis, Minn.	540	151	40,914		691	+209
18	Detroit Public School District Detroit, Mich.	515	150	25,000		685	+15
19	Wake County Public Schools Raleigh, N.C.	574	105	40,000		979	-71
20	Baltimore County School District Baltimore, Md.	412	226	49,000	5	673	+122
21	Cobb County Public Schools Marietta, Ga.	484	161	33,000		669	+170
22	Boston Public School District Boston, Mass.	381	271	27,000	100	652	+182
23	East Baton Rouge Public Schools Baton Rouge, La.	351	85	45,000		637	-9
24	DeKalb County Public Schools Tucker, Ga.	625	100	55,000		625	+120
25	Dept. Elementary & Secondary Education St. Louis, Mo. (Voluntary Collaboration)	479	24	14,000	100	693	+233

Largest 100 School Bus Fleets

Rank	District Listing	1988 Data				1989 Data	
		Large Bus	Small Bus	Pupils Daily	Percent Contracted	1989 Fleet	± Over 1988
26	San Diego Unified School District San Diego, Calif.	384	189	30,000	55	583	+35
27	Gwinnett County Public Schools Lawrenceville, Ga.	461	104	58,000		565	+50
28	Columbus Public Schools Columbus, Ohio	552		N/A		552	-70
29	Austin Independent School District Austin, Tex.	305	233	22,000		536	+20
30	Virginia Beach City Public Schools Virginia Beach, Va.	417	104	56,000		521	0
31	Cleveland City Schools Cleveland, Ohio	400	100	35,000		500	+103
32	Prince William Co. Public Schools Bristow, Va.	357	125	20,500		482	+39
33	Omaha School District Omaha, Neb.	182	310	14,000	34	472	0
34	Caddo Parish School District Shreveport, La.	380	100	30,000		480	+54
35	Metro Nashville Public Schools Nashville, Tenn.	335	120	48,000		460	0
36	Clark County School District Las Vegas, Nev.	315	142	32,000		457	+23
37	Denver Public Schools Denver, Colo.	325	100	25,000		425	+36
38	School Board of Brevard County Rockledge, Fla.	359	58	26,000		415	+42
39	Albuquerque Public Schools Albuquerque, N.M.	288	140	32,540	100	409	+17
40	Cypress-Fairbanks ISD Houston, Tex.	301	43	N/A		404	+21
41	Buffalo Public School District Buffalo, N.Y.	307	95	22,387	97	402	+54
42	Seattle Public Schools Seattle, Wash.	290	110	30,000	100	400	0
43	LA County Office of Education Downey, Calif.	120	280	4,000	100	400	-27
44	Portland Public Schools Portland, Ore.	230	170	15,000	95	400	-50
45	Fort Worth Public Schools Ft. Worth, Tex.	332		17,000		332	+4
46	Memphis Public Schools Memphis, Tenn.	181	150	20,000	100	331	-18
47	Jefferson Parish Public Schools Harvey, La.	328		50,000	100	328	-58
48	Pease County Schools Fort Richey, Fla.	243	54	22,009		327	+27
49	St. Louis Public Schools St. Louis, Mo.	250	70	14,500	5	320	-30
50	Knox County Dept. of Public Instr. Knoxville, Tenn.	250	57	34,510	100	317	+2

Largest 100 School Bus Fleets

RANK	SCHOOL DISTRICTS	FLEET MIX				FLEET SIZE	
		Large Bus	Small Bus	Pupils Daily	Percent Contracted	1989 Fleet	± Over 1988
'89	District Listing						
51	St. Paul Public Schools St. Paul, Minn.	297	3	29,000	96	300	-15
52	Spec. School District of St. Louis St. Louis, Mo.	292		6,000		292	+14
53	Anchorage Public Schools Anchorage, Alaska	281	85	18,000	60	277	+155
54	Jefferson County Public Schools Lakewood, Colo.	270	3	19,000		273	+11
55	Rockford Public Schools Rockford, Ill.	180	92	17,500	10	272	+53
56	Oklahoma City Public Schools Oklahoma City, Okla.	173	92	30,000		265	+6
57	Long Beach School District Long Beach, Calif.	184	51	22,000	86	245	+1
58	Tucson Unified School District Tucson, Ariz.	186	59	29,000		245	0
59	Richmond Public Schools Richmond, Va.	231		23,000		231	0
60	Ector County School District Odessa, Tex.	215	12	8,000		227	+34
61	Mesa School District Mesa, Ariz.	141	78	17,000		219	+23
62	Orleans Parish Public Schools New Orleans, La.	125	90	90,000		215	-85
63	Kanawha County Schools Charleston, W. Va.	204		23,000		204	+32
64	Washoe County School District Sparks, Nev.	138	56	12,000		194	+18
65	San Juan School District Carmichael, Calif.	118	58	13,000		174	-39
66	Franklin County School Columbus, Ohio	114	35	2,000		149	+24
RANK	SCHOOL BUS CONTRACTORS	FLEET MIX				FLEET SIZE	
		Large Bus	Small Bus	Pupils Daily	Number of Contracts	1989 Fleet	± Over 1988
'89	Contractor Listing						
1	Laidlaw Transit Inc. (U.S.) Van Nuys, Calif.	12579	5165	677,670	718	17671	+3236
2	Ryder Student Transportation Miami, Fla.	6000	1500	320,000	210	7500	+2900
3	Wayflower Contract Services Shawnee Mission, Kan.	3900	800	330,000	220	7300	+2300
4	Laidlaw Transit Ltd. (Canada) Burlington, Ontario, Canada	3508	172	179,784	109	3680	N/A
5	National Schoolbus Service Palatka, Ill.	2430	570	315,000	200	7000	+700
6	Vancom Incorporated South Holland, Ill.	1420	590	210,000	145	2010	+501
7	Durham Transportation Rosemead, Calif.	900	1017	45,000	70	1900	-300
8	Charterways Transportation London, Ontario	1260	200	70,000	42	1460	+60
9	Atlantic Express, Inc. Staten Island, N.Y.	1200	225	70,000	10	1433	N/A
10	Cook-Illinois Corporation Oak Forest, Ill.	750	450	N/A	56	1200	0

Largest 100 School Bus Fleets

RANK	SCHOOL BUS CONTRACTORS	FLEET INFO				FLEET SIZE	
		Large Bus	Small Bus	Pupils Daily	Number of Contracts	1989 Fleet	± Over 1988
'89	Contractor Listing						
11	Transcomm Inc. Malden, Mass.	400	600	30,000	47	1000	N/A
12	All Way Transportation Scarborough, Ontario	269	636	21,200	13	907	N/A
13	School Services & Leasing, Inc. Edwardsville, Kan.	573	296	73,000	14	869	+170
14	Mark IV Charter Lines Gardena, Calif.	590	245	40,000	35	835	N/A
15	Willitt Motor Coach Chicago, Ill.	435	315	N/A	24	750	0
16	Jelco Wisconsin, Inc. Waukegan, Wis.	523	120	40,000	17	743	+18
17	Towne Bus Company Hicksville, N.Y.	305	415	42,000	20	720	
18	Stockway Transportation Richmond Hill, Ontario	450	200	25,300	14	650	+150
19	Septen Inc. Bloomington, Miss.	130	520	18,000	8	650	N/A
20	Suffolk Transport Services, Inc. Bayshore, N.Y.	200	250	35,000	7	450	0
21	Robinson Bus Service Evanston, Ill.	400	50	18,000	15	450	+50
22	George Knapf Jr. & Sons, Inc. Glenmore, Penn.	300	140	36,000	6	440	+39
23	Briggs Bus Lines Edmonton, Alberta	275	100	15,000	7	375	0
24	Logan Bus Company Ozone Park, N.Y.	180	170	4,400	6	350	0
25	LAG Industries Corp. Jamaica, N.Y.	390		30,000		350	N/A
26	Simcoe Transit Co. Oshawa, Ontario	200	140	10,000	8	340	N/A
27	Stewart Bus Company Chicago, Ill.	225	80	5,500	2	305	+5
28	Medicine Lake Bus Company St. Paul, Minn.	235	35	17,500	12	270	N/A
29	Special Transportation, Inc. Lansing, Mich.	113	13	3,800	21	226	-24
30	Elloway Bus Service, Inc. Richfield, Wis.	150	75	12,000	5	225	+25
31	Huntington Coach Corp. Huntington Station, N.Y.	165	45	19,720	7	200	+12
32	Action Transp Enterprise, Inc. Pittsburgh, Penn.	110	80	12,000	4	190	-80
33	New York Bus Service Brook, N.Y.	181		N/A	1	181	+170
34	Kobussen Buses, Ltd. Kaukauna, Wis.	115	33	5,000	5	148	N/A

Rust Nags School Buses

California survey points out problems that may be nationwide.

It tends to sneak up on you. Sooner or later, it will attack your school bus. It's certainly costly. It can be dangerous. It is any of various scaly or powdery reddish-brown or reddish-yellow hydrated ferric oxides formed in the presence of water.

Rust.

How prevalent is it? Quite prevalent, according to a recent survey on rust and water damage to school bus fleets. Even if your buses are in the desert.

The survey was conducted by the Humboldt County Office of Education in Northern California. Barney Finlay, director of business services for the office, said rust "... is a very serious problem statewide, not just in rainy areas, and action needs to be taken ... It is our hope that these survey results will help to support efforts to correct design or manufacturing deficiencies in this area."

The survey was mailed to 750 school bus contractors and school districts in California, virtually blanketing the state. There were 163 respondents, about 22 percent; they operate 4,177 school buses, about 31 percent of the estimated buses in operation.

Fifty-four percent of the respondents said rust is in plain sight on their buses, and 55 percent suspect hidden rust. Thirty-two respondents have had 70 buses decertified in the past three years due to rust. California law requires school buses to be "reasonably watertight."

Seventy-two respondents had to make repairs to their fleet because of water leaks or rust; that cost

Number of Responses to Water Leak Locations			
	Transit	Conventional	Van Conversion
Front Top	36	31	26
Center Top	6	42	24
Rear Top	19	7	28
Doors	28	43	50
Side Windows	28	27	19
Windshield	97	37	29
Side Panels	15	6	9
Floor Area	17	19	3
Other Areas	23	2	4

more than \$1 million in actual repairs and \$100,000 in loss of bus use.

Dan Pires, Humboldt's transportation supervisor, said, "Our survey gives us an accurate picture of the state. The problem is nationwide if California is an example, because the vehicles are made all over."

Under the skin

Pires said the biggest problem is that water gets between the inner and outer skin, the insulation gets soaked and stays wet for three weeks. "We want to pressure the manufacturers to correct this," Pires said. He said some bus manufacturers galvanize body bows and inner and outer skins, but rust still gets in because welds rusted out.

Pires noted that one bus manufacturer has used a different sealing process for three years that is effective. He said that most leaks are from roof seals, and one manufacturer uses six-inch rubber tape for

heat-sealing the seams. The tape "runs" and makes a good seal, Pires said.

The survey also showed that:

- 19 percent of the respondents reported rust before the bus was one year old; 24 percent in one to five years; 35 percent in five to 10 years; 12 percent in 10 to 15 years; and 10 percent in buses older than 15 years.

- Of the small number of respondents who made a request for help, seven rated dealers "very helpful," five rated manufacturers "very helpful"; 16 rated dealers "helpful," 9 rated manufacturers "helpful"; 32 rated dealers "no help," 36 rated manufacturers "no help."

Business Services Director Finlay said, "While our primary concern is safety, another consideration is the nuisance factor of drivers that have to wear rain gear inside the bus or seats that can't be used by pupils unless they have an opened umbrella. We can build a better bus."